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TAC AIR SUPPORT OF THE US ARMY HIGH TECHNOLOGY FORCE

by

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US ARMY WAR COLLEGE

MILITARY STUDIES PROGRAM PAPER

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12 MAY 1982

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ABSTRACT

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The U.S. Army's new programs of High Technology Test Bed (HTTB) and High Technology Light Division (HTLD), are heavily reliant on the availability and responsiveness of tactical airpower throughout the range of battlefield tasks. Although these demands fall within the context of traditional airpower missions, the amount of TAC air and degree to which HTTB and HTLD seek to exercise control over air assets is unprecedented. This concept forces resolution of longstanding doctrinal issues between the Air Force and Army. The Air Force and Army should continue to actively pursue answers to these issues to the end of making HTLD and TAC air forces a more effective fighting team.

PREFACE

This study, undertaken under the auspices of the U.S. Army War College Military Studies Program has a two-fold purpose. First, the study provides a vehicle for learning something more substantive about the U.S. Army than offered in the normal USAWC curriculum. At the same time it allows a means to investigate Air Force/Army issues and attempt to articulate the problems and perhaps shed some light on their resolution. In this regard the study has been both instructive and rewarding.

Secondly, the study is an attempt to utilize an academic requirement to address a "real world" question and hopefully make a meaningful contribution to both the Army and the Air Force. In this regard, I have tried to be as objective as possible and divorce myself from preconceived notions and parochial views. There are aspects of the study that will both please and aggrevate the reader whether he be Army or Air Force. Views expressed in this paper, unless directly quoted, are strictly my own and in no way represent the opinions or positions of the Air Force, Army, Tactical Air Command (TAC), High Technology Test Bed (HTTB) or the Army War College. These opinions are the result of a great deal of reading, discussions with both Army and Air Force personnel, and interviews with a great number of officers particularly at HTTB.

Prior to attending the Army War College, I had a perception that inter and intra service "turf battles," misperceptions and parochialisms significantly reduced U.S. military effectiveness. Now, I am absolutely convinced that it's true. Under the Reagan Administration the U.S. Military establishment has the opportunity to strengthen itself by correcting severe deficiencies with the resources provided to accomplish the task. At the same time the military has an equal responsibility to insure success. With this mandate, comes a great risk — that the military will fail. Not that it will fail to meet the Soviet threat but that inter and intra service rivalries driven by parochialism and competing budgetary interests will squander accounts on redundant or non-cooperative systems and programs. The Army concepts of HTTB and HTLD bring such issues to the forefront. It is only through the successful resolution of Army/Air Force issues that the High Tech concept will succeed and, more importantly, it is only through cooperation between the several services that we will in fact have a credible military establishment to guarantee national security.

I. INTRODUCTION

From the outset, the decade of 1980s finds the United States economically largely dependent on overseas sources of strategic materials, politically swinging more conservative and militarily deficient vis-a-vis the Soviet Union. International events such as the Soviet invasion of Afghanistan, the fall of Iran, the capture and holding of U.S. hostages, the continuing Cuban involvement in Angola and Vietnamese occupation of Cambodia have are raised questions of U.S. capability and willingness to respond. Although public opinion has adjusted to the results of the OPEC embargo and price escalation, the growing doubt of U.S. capability continues to grow. By whatever numerical yardstick, the U.S. is second to the Soviet Union in military capability. Soviet success in space, demonstrated military equipment capabilities in Afghanistan and the Middle East are incessant reminders that the technological edge upon which the U.S. military has depended for a credible balance of power has eroded to insignificance. There is no doubt that the American military is better man to man, but the degredation of a technological advantage in fielded equipment and the realization that at some point quantity becomes quality, the U.S. military comes out a close second at best. To be second best in war is to lose.

After three decades without significant modernization the U.S. Army of the 1980s is in the midst of a large scale infusion of new technology, equipment and tactics. In the span of five to eight years

the Army will field over 400 new systems. Fundamental to the notion of modernization is the incorporation of new technology. New technology in fielded equipment forces changes in manpower requirements and training. New technology equipment represents increased capability which in turn creates the need for modified doctrine and tactics. Such changes incorportated at a consistant pace over a long period of time are evolutionary in nature and an organization can adjust at a regular pace. However, massive change in equipment capabilities and its accompanying ramifications in a short period create revolution as opposed to evolution. The U.S. Army is now in the midst of such a revolution.

As an adjunct to this revolution in the Army is the "High Technology Concept." Operating under the philosophy that the exploitation of technological advances for military purposes will dramatically increase capability and that in order to take full advantage of technology develop innovative concepts of employment, Gen. E. C. Meyer, Army Chief of Staff has sponsored the "High Technology Test Bed." Although in its formative stages, the High Technology Test Bed (HTTB) at Ft. Lewis, Washington, is proceeding at a rapid rate toward the objective of fielding a prototype High Technology Light Division (HTLD) by 1985. Assuming the concept continues to develop along its current path, the HTLD will be heavily reliant on the support of TAC air such that it will not be an effective fighting force without TAC air support. From General Meyer down through the 9th Infantry Division to the HTTB working groups, the Army has stated loud and clear that the success of the concept hinges on strong support from the U.S. Air Force primarily in Airlift and TAC air support. The concept, not yet totally articulated, asks for an unprecedented degree of AF support and raises doctrinal

issues which have been in the background since WW II. Now is the time for the AF to get involved in the Army's HTTB effort to the end that the Army will be able to meet its objective within the capability of the AF to support it. For the purposes of this discussion, TAC air will be confined to the roles of air superiority, interdiction (to include battlefield interdiction), close air support and to a limited extent, reconnaissance and electronic warfare. Airlift or mobility issues will be omitted.

After tracing the high technology proposal from test bed (HTTB) through corp and addressing the configuration and mission, this study will investigate the demands placed on TAC air by the high technology concept in light of Army battlefield tasks. Traditional TAC air missions of air superiority, interdiction and close air support will then be addressed with reference to "High Tech" expectations.

Specific recommendations concerning areas to be investigated and suggestions for improving the synchronization of Army high tech and TAC air will be offered.

II. HIGH TECH TEST BED - LIGHT DIVISION

> Our Army has begun a crucial and exciting new project -- The High Technology Test Bed. In fact, we are now well into the first phase of the program. We expect the work at Ft. Lewis to give us a lean, hard-hitting force -- a light division that will exploit technological opportunities, an organization designed for rapid deployment and sustainability. The prototype division, produced by the 9th ID (and by I Corps, when activated) will, of course, be designed to respond to worldwide contingencies including NATO, but we will focus on optimizing for combat in the Mid-East and SW Asia.
>
> Gen. E. C. Meyer
> Chief of Staff
> June 1981

Philosophically, the high tech effort has the objective of producing a light infantry organization, quickly deployable yet having firepower well in excess of that currently characteristic of the infantry. More specifically, the force is to be structured and equipped such that the division is fully deployable in 1000 C-141 sorties. The concept, as currently envisioned, will proceed through three phases: High Technology Test Bed (HTTB), currently in being, to a High Technology Light Division (HTLD) the prototype of which will be fielded by 1985 then, thirdly, a High Technology Light Corps structure circa 1990.

HTTB is a small organization, separate from the 9th Infantry Division, which is the vehicle for fielding the HTLD. The prototype HTLD division will be the 9th ID. Both HTTB and the 9th ID. are commanded by the same man, currently MG Robert Elton. The mission of HTTB is to develop the configuration, determine the equipage, evolve the tactics

and doctrine for the HTLD prototype, the 9th ID. HTTB, then, is both the mold of configuration and funnel for equipment for the HTLD which will have the mission:

> To rapidly deploy to a contingency area, establish or expand a lodgement, and defeat enemy forces ranging from light infantry to tank and motorized forces; or be able to rapidly reinforce NATO.[1]

HTTB is in many respects a "mini Army" organization which is working aspects traditionally performed by TRADOC, FORSCOM and DARCOM. Working groups termed "How to Fight Panels" are laying the groundwork for doctrine, determining the force configuration and outlining employment concepts. The test division is conducting a technology search and screening equipment for inclusion into the force. Further, the charter extends to the point that HTTB will be directly involved in the acquisition process itself. In the short term, this is guided by the adaptation of off the shelf technology to HTLD purposes and in the long term the streamlining of the acquisition process to the end of more effectively exploiting technological advances.

Under the charter of HTTB is the development of doctrine under which this High Technology Light Division (HTLD) will achieve the objective of the:

> Tactical mobility, firepower, survivability of a heavy division with the airlift and sustainability requirements of a light division.[2]

In order to achieve this ambitious objective, the HTTB is proceeding down a track of achieving mobility through the innovative use of equipment either in the inventory or purchased on the open market; firepower through technology; and survivability through maneuver and deception. The goal is to accomplish this with a division that is fully deployable in 1000 C-141 sorties. Where deficiencies in mobility and firepower

exist, the Army will call upon the Air Force. Army commanders involved in the effort from the Chief of Staff to the HTTB working groups continually emphasize the need for active Air Force involvement throughout development and later the employment of HTLD.

At this point the exact configuration, equipage and doctrine are in the formative stage. However, the fundamental concept is shaped to the point that it warrants scrutiny, particularly in those areas where Air Force support will be needed. While the focus of this examination will be at the division level, the division does not operate in a vacuum and the HTLD does not envision operations in and of itself. "HTLD will conduct combat operations in a contingency theater as part of a contingency corps or under an ARFO (Army Forces) or JTF (Joint Task Force) umbrella."[3] At the same time, although HTLD will be treated in isolation in order to ferret out the demands of the concept on TAC air, this is not to suggest that air assets would or should be apportioned or allocated at the division level. It will, however, highlight unique demands upon air assets and reflect the fact that the light division as conceptualized will need greater air support in order to be an effective fighting unit. By examining the basic concept, major mission elements and Army battlefield tasks through Air Force eyes, it is hoped that the Air Force will better understand the Army perspective, anticipate demands and perhaps will provide some help in making the notion of Airland battle in this context a more effective concept.

The HTLD concept has the greatest utility when envisioned in the context of the Army's "Contingency Corps 86" (CC-86). CC-86 will eventually become the Army component of the RDJTF[4] and will be light enough to be deployed rapidly, on short notice in support of contingency operations. Although in its embryonic stage, the draft

concept of CC-86 is nearly identical to HTLD in mission, projected capability and limitations. The contingency corps like HTLD will be totally reliant upon the USAF and USN for deployability, resupply, and early fire support.[5] Not so succinctly stated but addressed in fragments is the Army assumption of local air superiority for any combat operation and the need for help in target acquisition, strike and insertion of combatants.

It makes no difference to the fighter pilot whether or not the division has 8 maneuver batallions or 9; he could care less if it is configured 4x3x2 or 5x3x2, but he does need to know what his job is and the tools which are available to him to accomplish the requirement. In order to articulate these tasks, the ramifications of configuration have to be addressed.

Configuration: Configuration is driven by the objectives addressed earlier of firepower, maneuver, sustainability and deployability. Deployability per se, is not a subject of this study; however, since deployability considerations are driving factors in configuration, the consequences must be addressed. The prototype division is to have approximately the same number of personnel as the current 9th ID (appx. 16,000). In order for the division to be deployable in 1000 C-141 sorties, it will be equipped with little or no armor, relatively little artillery and no Hawk. Division artillery and air defense assets will be towed rather than self propelled. Vehicles will be as light as possible; therefore, will have little armor protection. Consequently, the deployability consideration alone ultimately drives HTLD dependence on a higher organization to compensate for deficiencies in firepower, survivability and air defense. More often than not, that other

organization is TAC air.

Mission: According to CSA direction, the HTLD will, "be designed to respond to worldwide contingencies including NATO, but will focus on optimizing for combat in the Mid-East and SW Asia."[6] The postulated threat consists of the full array of Soviet or Soviet trained and equipped forces from light infantry to armor. More specifically, the division will be able to defend and hold terrain, delay or attack and destroy the enemy. In order to accomplish any one of the three specific missions, HTLD will need TAC air in varying degrees and capabilities.

It is important to understand that the High Technology/Light Division is not a self-contained, self-supporting organization. Although the division fights as a unit, it operates in the context of a corps or JTF and in that structure has the benefit of supporting systems not integral to the division. Normally, in order for the division to sustain combat operations, it must be augmented from an Echelon Above Division (EAD) with fire support (artillery), air defense, combat support (engineers) and combat service support (logistics). In the case of HTLD, deployability considerations heighten its level of dependence on EAD. In this light, throughout the examination of specific battlefield tasks, a major limitation must be kept in mind: "When operating as an independent force, the division must be provided with adequate corps support forces."[7] As will be highlighted in the following discussion, these supporting forces are frequently in the form of tactical airpower which is centrally controlled above corps level.

CHAPTER II

ENDNOTES

1. Cerjan, Paul, Col., USA, Chief of Staff - HTTB, Briefing Text (High Technology Test Bed), Ft. Lewis, Washington, 20 January 1982, p. 4.

2. Ibid., p. 3.

3. Ibid., p. 7.

4. Shepard, LTC, USA, Concept for Contingency Corps 86, Draft. Combined Arms Center: Ft. Leavenworth, KA, 18 June 1981, p. 2.

5. Ibid., p. 3.

6. Meyer, E. C. General, USA, Chief of Staff Letter: High Technology Test Bed, 17 June 1981.

7. _____. Operational Concept for High Technology Light Division. Draft, 10 March 1982.

III. BATTLEFIELD TASKS

Combat operations of an Army organization can be broken down into, traditionally, eight battlefield tasks. In the case of HTLD a ninth, deception, has been added. The following discussion of the battlefield tasks with respect to HTLD will assume a Southwest Asia scenario in which the threat is Soviet or Soviet sponsored and styled forces ranging from light infantry to armor. Characteristic of this scenario are realities of great distances, extremes of terrain and no existing U.S. bases. Consequently, any reasonable force size will operate with a low ratio of troops to terrain covering large distances (HTLD envisions their front as approximately 400 km wide and 250 km deep).[1] Unlike a traditional NATO scenario with well defined lines of contact, the "front" will be characterized by pockets of engagements in the near areas and along main avenues of approach. As is the case in any postulated U.S./Soviet confrontation, U.S. forces will be significantly outnumbered. Lastly, although frequently unstated, the performance of battlefield tasks is unhindered by enemy air; i.e. local air superiority is assumed.

Concept of Operations

The key feature of HTLD that differentiates it from other infantry divisions is how it fights. The division fights by utilizing superior mobility, hit and run tactics throughout its area of influence. With the capability to quickly mass firepower at an enemy weak point, deliver

a lethal strike and rapidly disperse, the HTLD will achieve its maximum effectiveness. The division cannot stand against armor in open terrain but in favorable terrain can defend, delay or attack depending on the size and composition of the threat. Its capability is maximized in desert, arid and mountainous terrain where frequent movement, dispersion, deception and night operations will be key.[2] While at least some of the fighting elements of the division may be employed in holding a delaying enemy advance, the major effort would be in wide ranging operations to the enemy's rear and on his flanks. the principles of maneuver, surprise, concentration of force are maximized and direct confrontation of a stronger force is to be avoided. Survivability is achieved through maneuver, speed and deception.

Without completely redefining these tasks, the emphasis will be placed on the role of necessary air augmentation. With respect to battlefield tasks, a survey entitled "TAC air Support of the US Army" (TAC air survey) will be frequently cited. This survey, while it highlights the perceptions of some Army personnel, should not be taken out of context. The survey itself, results and a discussion of its validity are included at Annex A.

The following look at battlefield tasks will include those areas which create significant demands on TAC air. Communications, Combat Support and Combat Service Support are omitted: Communications is implicit to command and control and will be brought out in Chapter IV. Combat Support and Combat Service Support functions requiring TAC air are either implied in other tasks or have the greatest significance to airlift which is not a topic in this study.

1. Command and Control (C and C) - The function of receiving and analyzing information, directing and controlling tactical units

during combat operations.[3]

"The division command and control system supports the commander in influencing enemy forces capable of entering the battle within 72 hours."[4]

"The area of influence is that part of the battlefield where the commander must be able to acquire targets, and bring fire to bear against enemy forces with weapons under his direction."[5]

In order to exercise command and control in the contingency scenario consistant with the concept of operations, the division commander must be able to exercise surveillance and direct forces over 200 km away. Additionally, the concept calls for the division C&C system to allow the commander to integrate air and land forces, effectively interface intelligence and electronic warfare functions and coordinate airspace use. The division operating under this concept, must have the means to communicate with subordinate units, acquire and service targets and access the results of combat actions. Although HTTB is pursuing equipment to allow this, it does not possess nor does technology promise near term command and control systems to accomplish the task over an area as large as that demanded by the scenario. The recent deletion of funding for SOTAS (Stand Off Target Acquisition System) severely hurt the HTTB liklihood of acquiring this internal capability in the near future.

Consequently, HTTB is turning toward the Air Force for assistance in surveillance through AWACs and looking toward interfacing Air Force and national systems at division level and below in order to provide the capability to exercise command and control of forces. There are, however, inherant, current limitations in AWACs which preclude the furnishing of the type information which the division commander needs. Addi-

tionally, the TSQ-73 system which is integral to the HAWK missile system is the only operational system that has the data link interface with AWACs (assuming the Message Processing Center is included) and the HAWK is not currently organic to the notional HTLD nor any other division. HTTB is beginning to investigate the applicability of the AF Pave Mover System in this regard.

Secondly, the concept of command and control assumes that the division commander has the forces responsive to his direction through which he can bring fire to bear against the enemy in his area of influence. However, with the exception of attack helicopters and ground teams mounted in or on light weight, high speed vehicles, this firepower has to be represented by TAC air which is not in the division.

In the task of Command and Control, then, HTLD is looking toward the Air Force to provide a large part of the means to command and control elemens over large areas and firepower via TAC air to control within his area of influence.

2. Close Combat - Armed forces are organized trained and equipped to engage in and successfully conduct close combat with the enemy. All other battlefield tasks are in support of this function. HTLD expands this notion such that contact will occur at a time and place of HTLD choosing over a relatively large area. Maximum utilization is made of maneuver, surprise and deception in order to strike the enemy at vulnerable points throughout the division area of influence. Organic vehicles and aviation assets provide the rapid mobility for quick, decisive action at extended ranges. Coordination of all elements and the synchronization of firepower assets are essential to HTLD effectiveness.

In contingency operations there is a high liklihood that insertion will occur in an area where no U.S. bases exist. Consequently, HTLD envisions three phase operation initially: deployment, lodgement and expansion of the lodgement. In each phase HTLD is heavily reliant on TAC air - first for local air superiority then Close Air Support (CAS) and interdiction.

Phase I - Deployment. The HTLD operational concept requires Air Force field support during and after assault landing. "Close air support is required to help ground forces, obtain and maintain friendly movements."[6] Additionally, supporting AF intelligence assets must provide information to commanders (Army) in a timely manner so as to be able to make sound tactical decisions.

Phase II - Lodgement. "Continued fire support and battlefield interdiction is provided by air and Naval firepower."[7] "Phase II operations will be conducted on a nonlinear battlefield requiring tactical commanders to plan for the employment of combat and support forces capable of influencing the battle."[8]

Phase III - Expansion. "Air interdiction operations are directed against Threat Command and Control, LOCs and massed formations essential to enemy operations. Close air support missions are mounted to fix enemy forces in a reactive posture and support friendly force maneuvers."[9]

In operation of forward deployed forces the role of TAC air in maintaining air superiority, close air support and interdiction are essential to HTLD success. Whether on the attack, defending or delaying the operational concept continually includes the integration of tactical aircraft close air support with organic means of firepower. In short, from the HTLD perspective, TAC air support is absolutely essential to

the success of close combat.

It is instructive to note the response to the TAC air survey regarding the task of close combat. Although the postulated scenario and configuration were not identical to HTLD, they were very similar. In the opinion of at least 75% of the respondents, the Army infantry could not perform its mission without a maximum of TAC air support. Of the 49 infantry officers responding, 93.6% answered that they could not do their job without some TAC air. A maximum of 8.4% believed they could do the job without TAC air.[10] From this result, and discussions with Army officers, it seems that the U.S. Army is now in a position that they cannot perform close combat against a Soviet force without supporting TAC air.

Fire Support

"The Division attains a firepower advantage through mobility and firepower application, not massed attrition."[11] The fire support function as defined by the HTLD operational concept is broken down into close combat support, counterfire and interdiction. Functionally, the fire support problem is subdivided into the areas of target acquisition, processing, attack and assessment. With regard to weaponry, tactical aircraft are included in the same breath with field artillery, mortors, etc. In other words, to some extent TAC air is counted on for artillery type support.

With regard to second echelon forces, HTLD expects the Air Force to utilize primarily Battlefield Air Interdiction (BAI) sorties and secondly CAS sorties in conjunction with ground teams to attack the enemy second echelon.[12]

It is in the area of fire support that HTLD most definitively

states its concept of the employment of TAC air. For this reason Annex C, "Fire power," of the Operational Concept for the High Technology Light Division is included in this study as Annex B. (Recall at this point, that HTLD operates under an umbrella of local air superiority.) "As a general principle, the weight of tactical air forces is applied to attacking enemy follow-on echelons, once the main attack is identified. During offensive operations, the weight of tactical air forces is used against enemy reserves."[13]

In short, HTLD expects TAC air to provide local air superiority, and BAI and CAS sorties that are responsive to the division commander.

Air Defense

"HTLD organic air defense capabilities are limited to defeating low altitude air threats."[14] Air defense protection above and beyond this will have to come from sources outside the division, including TAC air. In tasking echelons above the division, the HTLD expects among other things, EAD will, "provide counter air, air defense, and electronic measures to insure that enemy aircraft are attacked on the ground and enroute to and from targets."[15] HTLD plans to utilize organic air defense to defend assets as opposed to area coverage. Organic Air Defense maneuvers with combat units as opposed to protecting the division rear. During the initial deployment and lodgement phases, Air defense must be provided primarily by TAC air.

During expansion or other combat operations, air defense beyond the capability of day, visual systems such as Chapparel, stinger and a gun (Vulcan or DIVAD) possibly augmented by Roland, must be provided by EAD HAWK and/or TAC air. In a Southwest Asia scenario this translates to a light division without an organic HIMAD capability that is heavily reliant

on TAC air for air defense.

In light of the enemy helicopter threat, HTLD envisions an organic air to air capability for its own helicopters.[16] This plus the previously mentioned systems constitutes the air defense against the helicopter.

Intelligence

The division relies on IEW (Intelligence and Electronic Warfare) assets at EAD to:

1. Complement and supplement division IEW assets to insure requirements in the division area of interest and influence are fulfilled.

2. Provide information produced by IEW assets at echelons above corps, other U.S. services, allied commands, and national level assets.[17]

Key to the intelligence function is the information fed from outside the division into the division Command and Control System as mentioned previously. In other words, in order to deliver the quick, lethal attacks prescribed in the basic concept, intelligence must rapidly identify enemy weak and strong points, the flanks and his force composition.

Deception

Although not yet defined beyond a notional level, HTLD plans that, "Deception operations, incorporating both electronic and physical representations, must be fully integrated into all battlefield tasks to be successful."[18] Based upon discussions regarding all other battlefield tasks, it would be logical to assume that TAC air would be actively

involved in deception operations as well.

In sum, the concept of operations for HTLD integrates TAC air into every aspect of employment. TAC air is so intertwined into the concept as to be pivotal for successful combat operations. Key to the concept is the capability of the HTLD commander to have all fighting and support forces including TAC air forces for the performance of close air support, interdiction and reconnaissance responsive to his needs. Additionally, the C^3I system would necessarily function for and be responsive to the commander. Components of this system include those owned by the Air Force.

CHAPTER III

ENDNOTES

1. Given a Southwest Asia scenario, the HTTB postulates an area of operations approximately 400 Km wide and 250 Km deep.

2. _____. Operational Concept for the High Technology Light Division, Draft 10 March 1982, pp. 1-3.

3. Ibid., p. 7.

4. Ibid., Annex A, "Command and Control," p. A-1.

5. U.S. Department of the Army.

6. _____. Operation Concept . . ., loc. cit., Annex B, "Close Combat," p. B-3.

7. Ibid.

8. Ibid., p. B-4.

9. Ibid.

10. See Appendix A, Part III this study.

11. _____. Operational Concept . . ., loc. cit., Annex C, "Air Defense," p. C-1.

12. Ibid., p. C-5.

13. Ibid., p. C-6.

14. _____. Operational Concept . . ., loc. cit., Annex D, "Air Defense," p. D-1.

15. Ibid., p. D-2.

16. Ibid.

17. _____. Operational Concept . . ., loc. cit., Annex F, "Intelligence and Electronic Warfare," p. F-4.

18. _____. Operational Concept . . ., loc. cit., Annex I, "Deception," p. I-1.

IV. TAC AIR

Tactical Air Forces (TAF) are organized, trained and equipped such that should deterrence fail ". . . to conduct war at the level of intensity and effectiveness needed to win."[1] "To defeat an enemy attack, tactical aircraft perform counter air, close air support and interdiction."[2] "Effective reconnaissance, surveillance and warning systems are essential to find the enemy and decipher attack preparation indicators to allow air and land commanders to direct the right weapons against the right targets at the right time."[3]

> [Theater Air Operations] "The missions of the Services are coordinated to provide the joint force with the proper balance of available airpower. The way in which these missions are coordinated, and the amount of effort allotted in each mission or task area, is directly related to the objective of the joint force and to the nature of the threat."[4]

Air Forces operate in the aerospace medium in concert with ground and naval forces to accomplish the tasks of winning any conflict. It is the mission of Army forces to fight and win the war on the ground. Air forces are charged first with winning the war in the air and secondly to employ forces in support of ground operations. Air forces by nature are characterized by speed, range and maneuverability unknown to ground armies. Air forces have inherent capabilities in flexibility, responsiveness and destructiveness far beyond those of ground armies. Consequently, tactical air force operations are generally not constrained by the same terrain limitations which confine ground armies.

Throughout successive iterations of the HTLL concept of operations (the most recent being 10 March 1982), dependence on airpower is stressed to the extent that in the performance of most HTLD battlefield tasks, the function of TAC air is pivotal. Conceptually, the employment of Army forces can be examined in light of the battlefield tasks addressed in chapter III with respect to HTLD. TAC air, in the broadest sense, has the inherent capability to contribute significantly to the Army performance of the battlefield tasks at every organizational level. To restrict allocation and distribution of TAC air at a level below theater or JTF is to deny the full system capability of air assets.

It would be instructive to view the HTLD battlefield tasks with respect to TAC air capability and doctrine for the employment of airpower in support of the Army.

At risk of opening pandora's box and without becoming preoccupied with doctrine, it should be noted that there is a fundamental difference in Army and Air Force perceptions of doctrine. The Air Force views doctrine in the macro sense - in other words, doctrine encompasses the broad sense of how air forces are best employed in a war effort in support of other land and sea forces. For example, air superiority is the first task of air forces. Air assets to be most effectively employed must be centrally controlled at the theater/JTF level by the air component commander. Task definition such as interdiction, close air support and counter air also falls under the preview of doctrine. Under this umbrella of doctrine falls procedure, tactics and concepts of operation which are separate, both conceptually and organizationally. Doctrine in the Air Force is not static but neither can it be said that it is dynamic. A.F. doctrine is necessarily broad and flexible so as to

not restrict the utilization of air assets.

The Army on the other hand, takes a micro view of doctrine in that the thinking along doctrinal lines includes notions of how to accomplish air space management, how to employ types of forces and how to utilize air assets. Organizationally, the Army has an entire command, TRADOC, which continually works doctrine issues. The development of doctrine is further enhanced by the branch school system and the Combined Army Center (CAC). Extensive use is made of regular general officer workshops and gaming in the process. In the Army what is put in print frequently becomes doctrine and applies to the Army as a whole. As a single agency or focal point, TRADOC functions to coordinate these efforts.

That which TRADOC publishes, such as Tactical Command Control TRADOC PAM 525-2, 20 June 1980, becomes doctrine for the U.S. Army. That which TAC publishes, such as TACOM 2-1 applies to TAC but not necessarily USAFE, PACAF, MAC or SAC. Joint TAC-TRADOC agreements such as JAAT, J-SEAD, and Joint Attack of the Second Echelon apply across the board to the Army but the same cannot be said of the Air Force. In short, TRADOC can speak for the U.S. Army, TAC cannot speak for the USAF. This is not to say that one or the other is bad, but it is something that both green and blue suiters must keep in mind in the Army-AF dialogue.

Back to the subject at hand, HTLD. With respect to the specific battlefield tasks in every case TAC air has the capability to perform individual tasks desired by HTLD. Although realistically, TAC air would not have enough assets to perform completely all tasks simultaneously. However, the key question is not whether or not TAC air has the capability but whether or not that capability will be responsive to the divi-

sion. Conceptually, looking beyond HTLD to a contingency corps structure, the question is whether or not TAC air will be at the disposal of the corps. In other words, is the Airland battle orchestrated at division, corps or JTF/theater level? According to HTLD concept of operations, it is the division backed by corps and other supporting forces. According to TRADOC Pamphlet "Corp 86 and the Airland Battle," the corps fights the airland battle. According to the Air Force, the Army organizes, trains and equips to fight the battle on the ground and the Air Force fights the battle in the air. And so on.

This is not to say that all of the above are completely contradictory nor that any one is totally right or wrong. It does highlight differences of opinion older than the U.S. Air Force itself which have yet to be resolved. An organization such as HTLD which is operationally dependent on tactical airpower for its effectiveness and survivability must have answers to these and other doctrinal, tactical and procedural questions. Without a clear understanding of the capabilities, limitations and utilization of the TAC air, HTLD cannot survive. Without the capability to effectively synchronize its effort with the Army, TAC air has little purpose. HTLD is forcing answers to a number of defense issues, certainly not the least of which is the effective synchronization of Army and Air Force assets.

HTLD TAC air support requirements have been addressed in terms of Army battlefield tasks. It is appropriate at this point to address TAC air mission elements and how they relate to HTLD.

Air Superiority.

The first and foremost task of TAC air is to gain and maintain air superiority so that ground forces can execute their maneuver plans

without being threatened by enemy TAC air. There is no U.S. Army commander on active duty today who has engaged in combat operations without air superiority. Not since isolated instances in WW II has the U.S. Army been threatened by enemy air.

At the three star level and below there are no U.S. Army commanders whose combat experience dates prior to Korea where air superiority was never in question after the first 30 days of U.S. involvement.[5] At the colonel level and below there are very few whose combat experience extends beyond Vietnam where U.S. Army forces never had so much as a hint of a threat from enemy air. As a consequence, in planning, gaming (used extensively by the Army for planning and force structuring), and exercising the U.S. Army comfortably assumes air superiority in the locality in question.

Professionals put a premium on experience. For the military that experience is represented by combat. Combat success indelibly burns impressions and opinions which color future decisions. Where there are no lessons from an air threat, that threat tends to fade. That is not to say that Army commanders suppose that the question of air superiority is insignificant. On the contrary, the Army fully realizes that air superiority comes first. The TAC air survey pointed out that over 65% of the respondents believed that air superiority must come first; however, the other 35% responded that something else must be given top priority. (See Annex A) The difficulty in perception arises not from the notion that air superiority must come first but from what else TAC air can accomplish simultaneously. Because air superiority is so easily assumed, request for battlefield interdiction and close air support are expected to be honored. In short, there is little understanding in the

Army for the dedication of assets required to achieve air superiority against a Soviet threat. Consequently, Hawk assets are dropped from HTLD because TAC air will be there; AWACs will be on station to support the HTLD command and control system; Multi-use tactical aircraft such as the F-4 and F-16 will fly BAI and CAS when in fact, they will have their sorties largely filled with the air superiority mission.

In war gaming, planning and programming the U.S. Army generally assumes that the USAF will gain and maintain air parity or local air superiority. In a broad sense this is as it should be; however, air superiority raises questions and has dimensions not addressed in the foregoing. The best defense is a good offense - the best way to kill an enemy air force is to stop him on the ground then continually attack him enroute, in the target area, on egress and then back on the ground. Only in the Air Force are weapons systems that can fulfill this entire spectrum. Realistically the Air Force does not have adequate assets to accomplish the full task in the SWA scenario.

Air superiority in its broad sense precludes enemy air from attacking U.S. rear areas and LOCs and, protects troops in contact from attack by enemy air. In order to accomplish this task in any scenario, the U.S. Army ground based systems play a vital role. In any scenario, especially a contingency situation such as SWA, Air Force assets will be limited, be required to operate over extended ranges, and cover a large area. Just as the Army will depend on the Air Force for interdiction and firepower support, the Air Force will count on the Army for its ground systems for help in local air superiority. Without HAWK the Army's Capability in this capacity is severely constrained. Currently, the HTLD configuration does not include HAWK. Whether or not HAWK will deploy in EAD support is undetermined. Conceptually, with the driving

factor being deployability it seems that the priority of HAWK is not high enough to make the HTLD manifest and therefore is not integral to the concept without outside support. However, I-HAWK represents the best currently available deployable SHORAD and air defense system. Additionally, HAWK has the added potential value of fulfilling a vital link in the HTLD C^3I structure.

The air space management issues plagues not only HTLD but all Army/AF operations. Its resolution is key to effective joint operations. Rules of engagement severely limit the flexability and lethality of ground based systems and pilots are skeptical of Army Stinger, Chapparel and Vulcan personnel to discriminate. IFF and SHORAD systems are steadily improving especially when incorporated with Reliable Sting. However, problems remain in getting accurate, timely information to the troop with his finger on the trigger. SHORAD without HAWK is severely limited to non-existent especially in the HTLD configuration to date. The proposed incorporation of ROLAND falls well short of a meaningful SHORAD capability represented by I-HAWK and realistically is beset by severe problems in radar and supportability.

Military thinking for the last thirty years has centered on a NATO war in central Europe with an atypical excersion to Southeast Asia. Contingency operations especially in a SWA scenario require a break from the NATO mindset and must largely avoid extrapolating lessons from Vietnam experience. The HTLD configuration leaves a large void in Air defense coverage. Whereas in SEA air superiority was never in question and the NATO planner can comfortably look to corps or EAC for back up and air defense coverage, the same is not the case in SWA. The JTF, corps and TAC air structures wrestle with the same deployability prob-

lems as HTLD. To require corps or EAC Support not only "passes the buck" but significantly degrades HTLD capability to accomplish its postulated missions, to survive and to be the hard hitting, highly maneuverable force it seeks to be. More specifically, HAWK represents a potential asset to the HTLD concept that cannot be supplanted by any system currently available or expected within the next five years.

HTTB is seriously investigating the netting of radars including AWACs and the HAWK - TSQ-73 in order to augment both the air defense surveillance and the intelligence available to the commander. However, without organic HAWK, the test will be of interest but not responsive to HTLD. The linkup will work; however, it requires a permissive EW environment and/or a Message Processing Center (MPC) for conversion of the data link information to a digestable language for the TSQ-73. MPCs are expensive, in extremely short supply and it is highly unlikely that the system would be included in a corps support package. The Modular Control Element Project (MCE) (AN-TYQ-23) currently under development by the USMC and endorsed by the USAF would provide the AWACs interface without the necessity of the MPS. Even with the interface, AWACs in its present or programmed configuration is not a reliable system for the detection of slow moving threats - helicopters and ground equipment. AWACs is optimized for and extremely effective in dealing with fast moving aircraft but inadequate for dealing with the HTLD's greatest airborne threat - the Hind helicopter.

TAC air assets are best utilized for air superiority against fixed wing aircraft. To commit F-15s, F-16s or F-4s against helicopters would be to sacrifice a large number of these aircraft to collision with the ground. Simply finding a helicopter from a fast-moving fighter is extremely difficult and if the helicopter sees the fighter, it is a

simple matter for him to evade. To commit F-15s, etc to helicopter attack would be to neglect their primary mission. In face of the total threat, the helicopter is a very low pay off target for an air superiority fighter. Even the A-10, a relatively slow moving aircraft that operates in close air support and in conjunction with helicopters will have difficulty with the Hind. The helicopter should be a target of opportunity for the A-10, not a primary mission. The addition of heat seeking missiles on the A-10 would not significantly enhance his capability due to the fact chat the firing envelope for such a missile against a target close to the ground is less than the maximum effective range of the GAU-8 cannon. In short, the Hind will be for TAC air, a target of opportunity and will for the foreseeable future have to be an Army responsibility. In its present configuration, HTLD is poorly prepared to deal with the threat.

HTTB is investigating arming Cobra helicopters with heat seeking missiles which is the best possibility of countering the Hind threat over and above enhanced ground based systems. The Cobra operates in the same environment and has the capability to maneuver to an appropriate background suitable for maximizing the firing envelope of the heat seeking missile.

In short, the total air superiority issue entails far more Army/AF interdependence than is normally addressed. There seems to be a tendancy for the Army to assume away air superiority and get on with the ground war. By the same token there is a strong tendancy for the Air Force to leave the ground war to the Army and concentrate on the campaigns for air superiority and interdiction. This leaves in the grey area, "too hard basket" vital issues such as airspace management, and the

helicopter threat. Effective solutions to the airspace management issues will be further discussed in C^3I and the helicopter should be a target of opportunity for TAC air and a primary concern for the Army.

Interdiction.

> Air interdiction operations are conducted against the enemy's military potential before it can be effectively used against friendly surface forces. These operations restrict the combat capability of the enemy by delaying, disrupting or destroying their lines of communications, their forces, and their resources.[6] - Air Force Manual 1-1

> Conduct battlefield interdiction operations - that is, ground attack - against enemy reserves, fire support elements, command posts and supply points. This is probably the most effective use of tactical air forces because targets are plentiful and attacks may be concentrated and sustained. The defeat of second and third echelon attacking forces before they even reach the line of contact is a main objective of such operations.[7] - Field Manual 100-5

"The interdiction campaign begins with attacks against the production sources of war material. It continues to bring that material under attack as it moves through the air, sea, and land lines of communication to the battle area."[8]

Interdiction is a task for which airpower is particularly well suited because of its inherent capabilities in speed, range, flexibility and firepower. In order to be effective, it must be sustained with adequate force for a long enough period of time to significantly reduce the capability of enemy forces to wage war.[9] Interdiction has its greatest impact in the notion of a campaign consistant with the theater forces commander's plan of action as opposed to sporatic bombing of targets of opportunity or of immediate concern. In this sense the interdiction campaign is most appropriately addressed in the context of theater strategy as opposed to unit tactics. It is through a well planned, concentrated air interdiction campaign that the battlefield is

isolated in such a manner that U.S. Army forces can engage and defeat an enemy who cannot satisfy logistic or reserve requirements. In Korea, ". . . it [interdiction] was an unqualified success in achieving its stated purpose, which was to deny the enemy the capability to launch and sustain a major offensive."[10]

The U.S. Army tends to think of interdiction in terms of Battlefield Interdiction (BAI) [see exerpt on p. 22, FM 100-5]. HTLD no less addresses interdiction and its need for TAC air support in terms of BAI which is jointly planned at the division.

> [BAI] Includes operations to destroy, isolate, neutralize, or delay the enemy's attack in depth and create opportunities for ground forces to take offensive actions at the flot. BAI targets and the timing of interdiction is keyed to planning for ground operations.[11]

> As opposing surface forces move to engage in combat, the application of air interdiction resources becomes more sensitive to the surface commander's battle plans. That portion of the air interdiction mission which may have a direct or near-term effect upon surface operations - referred to by the term 'battlefield air interdiction' - requires the air and surface commanders to coordinate their respective operations to insure the most effective support of the combined arms team.[12]

Although not conducted in close proximity to ground troops as in close air support, BAI in this sense becomes an extension of the fire support or artillery function. HTLD, conceptually driven by the emphasis on deployability will include relatively little artillery. Notionally, a similar force with a larger organization such as a light corps would be likewise constrained. Therefore, conceptually, the high tech concept will be somewhat lacking in firepower integral to the division and will then rely on TAC air to a greater extent. So great is this dependence on TAC air that the HTLD concept of operations is drafted to make TAC air firepower both responsive to the division and pivotal to the outcome of combat operations. At this point, it is not certain that the USAF is

fully aware of the degree of reliance and responsiveness expected by the U.S. Army nor is it certain that the U.S. Army is fully aware of the degree of support that TAC air will be able to provide.

In accordance with the USA and USAF Information Memorandum, "USA and USAF Agreement on Appointment and Allocation of Offensive Air Support (DAS)," 23 May 1981, ". . . BAI is managed at the air component level in response to corps-identified targets."[13]

> . . . the Soviet concept of employment of armored forces calls for deeply echeloned forces directed at a narrow section of friendly defenses to force a breakthrough and exploit the penetration. This concept tends to reduce the distinction between close air support and interdiction. To stop the advance of these echeloned attacks, air support is needed from the point of contact to the depth of the enemy thrust directed as friendly positions. These operations, sometimes referred to as Battlefield Interdiction, must be closely coordinated with the ground commander.[14]

Although this and many other documents are written with NATO in mind, the concepts apply equally to contingency operations — OAS — centrally controlled at an echelon above corps and decentrally executed with coordinated joint planning at all levels of command. This is inconsistant with the operational concept of FTLD.

This fundamental difference in perception between the USAF and USA is discussed in detail from the Army perspective in TRADOC PAM 525-5, The Airland Battle and Corps 86. The Army understands fully the need for and importance of interdiction. However, when the Army speaks of interdiction, especially in a corps or division context, this equals Battlefield Interdiction to the Air Force. Command and control of BAI is at the core of the AF/Army difference. "For the present, many of the acquisition means and most of the attacking means will come from air forces . . . . Regardless of who owns them, these are the means we need to gain the best battlefield return."[15]

HTLD will benefit from deep strike interdiction to isolate the battlefield as will any other Army organization. HTLD will receive BAI sorties through the Corps from the air component commander. Targets hit, timing and their relative priority will be a function of decisions at the air component/army forces command level. Consequently, assets may or may not fulfill HTLD requests. Whether or not HTLD receives TAC air support at a time and place of its chosing is a function of Corps requests, JTF decisions and TAC air capability.

The Southwest Asia scenario is well suited for air interdiction operations - well defined lines of communication, natural choke points and relatively little cover for massed enemy forces offers an inviting target environment. However, the extreme ranges involved, few operating bases, Soviet depth and versatility of integral air defense, and limited assets are major obstacles to an interdiction campaign. Given this, the tactical air forces are tending toward multi-mission aircraft such as the F-4, F-16 and F-15 (not yet assigned a surface attack mission but may be assigned that role as a secondary mission in the future). With multi-mission aircraft the Air Component Commander (ACC), has the maximum capability and flexibility to fulfill JTF tasking and Army requests.

By conceptually integrating TAC air into all aspects of HTLD, HTLD restricts itself to and limits in usefulness on the availability and responsiveness of air assets. Army/AF doctrine, concepts and the realities of limited assets are all counter to the degree of TAC air proposed by HTLD. In short TAC air will interdict but will not be directly responsive to the HTLD.

Close Air Support

Unlike interdiction, "Close air support missions require detailed control to integrate them with the fire and/or movement of friendly forces and must therefore, by responsive to direction by the land force at all stages of execution."[16] CAS is normally distributed down to the corps level. "Normally, close air support will only be employed when Army organic firepower cannot cope with a threat."[17]

By intertwining TAC air and HTLD so closely, once again the perception is that without TAC air responsiveness, the division cannot do its job. By elevating the HTLD concept to the corps level, the responsiveness has its greatest liklihood of success. The capability then becomes a question of assets allocated to the corps.

A second factor, particularly germane in SWA, in the asset question is airfield availability. As was mentioned earlier, TAC air is largely equipped with multi-use aircraft which may be utilized in air superiority, interdiction or close air support. Only the A-10 is primarily a close air support asset. Given the extreme ranges, few suitable air fields and the short range of the A-10; HTLD, tied to dedicated close air support assets, severely limits its capabilities, and hence its usefulness. The A-10 is best utilized in the CAS role within short range of the FEBA allowing long station times to sustain ground operations. In short, making itself so totally dependent on air power, HTLD limits its utility and suggests that without TAC air it cannot be effective.

As a related aside, it is interesting to note that from the TAC air survey, an overwhelming majority of respondents (68.9% to 79.2%) replied that they could not perform the battlefield tasks of close combat, fire support or air defense without at least a maximum of TAC air. Since the

vast majority of respondents with combat experience gained that experience in Vietnam, it is logical to assume that their opinions are largely shaped by that experience. Since Vietnam was not a good example of how to use airpower, it can be further postulated that the opinions of Army Lt. Cols. and Cols. concerning the utilization of airpower are rooted in an erroneous example. Perhaps the U.S. Army is too reliant on close air support and BAI to the end that it is not reliant enough on its own internal resources. For example, an anyormous artilleryman commented in response to the survey, "I - an artilleryman - have been in situations where the infantry has waited for TAC air under fire when a few artillery rounds would have taken care of the problem."

A second related issue is an Army opinion of how to best utilize TAC air. Current TRADOC and other Army official publications emphasize area of influence, area of interest and second echelon attack. This concern carries the Army beyond its organic means to see and/or attack the enemy. In HTLD this notion is advanced to the point that the front line battle is secondary to the attack of the second echelon. In order to hold the line and attack, the flanks or in the enemy rear, the Army is found to turn to the Air Force to provide the means to fight in this manner. Not only is the Army looking to the AF for fire support, but also mobility, air defense, command and control and intelligence. In this light, the survey reflected the preponderant opinion that, in every case, after air superiority, close air support should be a higher priority that interdiction.

On the contrary, TAC air close air support should be employed primarily when ground systems cannot do the job. On the defense, CAS can help stop an enemy attempt at breakthrough or break up the main

attack. In delaying action, CAS can help slow enemy advance. On the attack, CAS, well planned and coordinated can be of great value in assisting a breakthrough or to support a high speed exploitation of enemy weak points. As previously cited and reflected in the TAC air survey, the Vietnam experience is highly suspect in coloring Army perceptions which lead to the erroneous conclusion that TAC air close air support sorties will be abundant and available for the use by ground forces. Neither a NATO nor a SWA contingency situation will find this luxury.

It is difficult for this airman to understand why the U.S. Army given air superiority and a decimated enemy second echelon cannot defeat an enemy in close combat without TAC air supplied close air support. The Air Force, like the Army, has limited assets. The Air Force, like HTLD in Southwest Asia is faced with problems of extreme distances, lack of operating bases and severe support problems. Air Force assets in support of HTLD will be in support of all Army forces in first gaining and maintaining air superiority; second, interdiction; and thirdly, close air support.

C^3I

Although not a specific mission area in and of itself, C^3I is both the bond and common thread for Army battlefield tasks and Air Force mission elements. It is through the exercise of command and control of both air and ground forces against targets acquired by and accessed through intelligence that forces are employed. Without communications, none of this can operate. Whether separated into separate tasks or lumped together as one, C^3I is not only the key to HTLD success but fundamental to effective concert of Air Force and Army forces. Even if

HTLD never comes to fruitition, HTTB will be a resounding success if it can effectively solve the C^3I Army/Air Force issues and implement a system which is secure, efficient and interoperable. HTTB has the means and the resources to solve the problems.

Command, control and communications dramatically affects the successful accomplishment of every battlefield task. A lightly armed force striking at the right place and proper time can acheive decisive results in face of overwhelming odds. Conversely, a heavily armored force can be defeated by a inferior force if it attempts combat at the wrong place and time. The difference is precise command and control based upon superior intelligence both in timeliness and substance implemented through immediate, secure communications. American forces against a Soviet or surrogate foe in almost any scenario will be outnumbered, outgunned and outweighed. HTLD by definition represents an extreme of this reality. The pivotal factor for HTLD is effective C^3I not only within its own context but also with respect to echelons above division and TAC air. It is through an effective C^3I system that HTLD will be able to accept the realities of limited outside support and still be an effective fighting unit within the context of its concept of operations.

It is a reality that neither HTLD nor any other division will exercise command and control over TAC air assets. TAC air will be controlled at JTF or theater level but each division will realize the benefit of the TAC established air superiority umbrella and interdiction campaign. HTLD has a definite place in the air superiority equation through airspace management and organic air defense assets. Without HAWK, HTLD has very limited SHORAD capability and lacks the basic means to communicate with AWACs.

Although HTLD will not control the interdiction campaign, it can have significant impact on the timing and location of target selection. Automatic Data Processing (ADP) is at the forefront of technology and applications of this capability are currently under investigation. Proper equipage of ADP equipment in HTLD and interface with EAD and Air Forces will allow HTLD to significantly reduce the time from detection to target nomination and strike either with means at the disposal of the division or EAD. By having the capability to operate inside the enemy's decision cycle, HTLD forces will be able exact greater leverage and multiply its effectiveness. Leverage gained would be further multiplied against a stylized, systematized Soviet or Soviet trained enemy. Only by having the capability to exercise this precise, timely command and control will HTLD be able to being the concept to reality.

TAC air will not provide forces for HTLD to command directly; however, TAC air can certainly assist him with services more specific than generic air superiority and interdiction if it is prepared to accept and utilize the information. Communications provides this link. There are currently a multitude of systems on the market and in Air Force and Army inventories for communications of all types; however, in too many cases information cannot be interchanged without a complex interface or the link is not secure from jamming. For example, AWACs has the capability to interface with the TSQ-73 (HAWK system) via easily jammable HF data link or TADILB secure data link if the system is equipped with a MPC (Message Processing Center). An MPC is very expensive, complex and there are few in existance. Consequently, HTLD resources would be well spent to investigate the incorporation of the means to directly accept AWACs information such as the Modular Control

Element (MCE) currently under development by the JSMC and planned for inclusion in the USAF Tactical Air Control System.

With the capability to directly accept information from AWACs, HTLD will not necessarily have the type of intelligence information it needs. AWACs can rarely "see" helicopters and it cannot detect enemy mass movements of armored ground forces. The deletion of funds for the Standoff Target Acquisition System (SOTAS) delt a severe blow to this capability; however, the Air Force Pave Mover System currently under advanced development offers this capability in the future. Such capability coupled with other information fed into an all source intelligence system and disseminated throughout the command and control system allows commanders at all levels to make the timely, correct decisions to exploit enemy weakness, avoid his strongest points and multiply US combat power.

In short, the HTLD focus on technology has as its greatest potential for success the implementation of a timely, effective command and control system which utilizes and marries the best capabilities of both the USAF and USA to the end that ground and air forces are most effective. HTLD has both the charter and the resources to solve the problems. Tactical Air Command has taken an important step by assigning a USAF Colonel (effective June 1982) to HTTB to assist in the TAC air/HTTB interface. The inherant tasks and resources will then be in place for HTLD and TAC air to best mold the respective capabilities to the end that both are free to do their particular job and they each interweave in mutual support to yield the most effective combined arms team.

CHAPTER IV

ENDNOTES

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V. SUMMARY

An outgrowth of the current U.S. Army modernization effort is the High Technology concept which is a program to train and equip a light infantry force characterized by hard hitting combat power coupled with rapid deployability for contingency situations. The Army is looking to technology to provide the firepower and survivability in combat and the lightness to deploy the prototype division in less than 1000 C-141 sorties. Current equipment or technology in some cases does not yield adequate firepower at the right place nor provide the necessary command, control and communications response to allow the organization to operate as envisioned. In these cases the concept turns to the US Air Force - usually tactical airpower for assistance.

The program will progress through at least three phases: (1) High Technology Test Bed (HTTB) currently underway at Ft. Lewis, Washington, (2) High Technology Light Division (HTLD) - the prototype for which will be the 9th Infantry Division and ready by 1985, and (3) a light infantry division (HTLD) fully infused with high technology and fully qualified to employ in combat approximately 1990. Simultaneous with the full development of the HTLD will be the light corps which, although in its formative stages, should be functional around 1990.

Throughout, the concept has four major threads which tie the entire program together:

1. Evolve an optimum light infantry organization to best

exploit technology.

2. Evolve optimum employment doctrine.

3. Develop training programs to teach soldiers and units the best use of equipment.

4. Execute in face of superior numbers and firepower.

The heart of the concept is the necessity to be able to optimize the synchronization of every element of combat power - including tactical airpower.

From the Chief of Staff down to the HTTB working panels, the Army has stated loud and clear that close involvement of the Air Force, particularly Tactical Air Forces, is absolutely crucial to the proper development of the concept and effective employment of the force. To date Tactical Air Command is working with personnel at Ft. Lewis to enhance the Army/AF interface but the Army requirements are not fully developed and the Air Force, outside a few in TAC and on the Air Staff, does not have a firm understanding of what the concept means in terms of air support. Neither the Army nor TAC have yet resolved the issues of command, control interoperability and asset utilization coming out of HTTB that will spell the difference between success and failure.

This study attempts to define HTLD demands on tactical airpower (TAC air) with respect to six of the Army's nine battlefield tasks; secondly, to discuss traditional TAC air missions in light of HTLD desires; and thirdly, to recommend means to resolve the disparaties.

As stated in the introduction to this study, HTLD forces basic Army/AF issues that have gone unresolved for decades. HTLD needs with respect to TAC air are fundamentally no different from but more critical than U.S. Army needs. Simply stated these are:

1. Air Superiority - in order to be able to exercise its scheme of maneuver HTLD must be free from attack by enemy air. Because it is light, HTLD must have secure air lines of communication for resupply, insertion and extraction.

2. Air Force attack of reserves - in order to be able to systematically defeat the enemy, HTLD must be able to concentrate its efforts on enemy forces in contact without the enemy receiving significant resupply or reserves.

3. Intelligence - in order to be able to strike the enemy at decisive points and time, HTLD must have accurate, timely intelligence information which is available for the foreseeable future, only through Air Force systems.

4. Close Air Support (CAS) - for additional firepower in emergency situations and to assist in breakthrough, the HTLD needs CAS. As a matter of routine operations, CAS would facilitate operations but must no be essential for TAC air CAS assets are not at the disposal of the HTLD commander; therefore, he cannot be assured of their presence.

At the same time, TAC air needs with respect to HTLD are no different from those with respect to the Army in general. Specifically, TAC air needs:

1. Secure airfields - in order to insure air superiority, TAC air needs airfields which are sufficiently close to the area of operations so that TAC fighters can rove the assigned airspace, locate the enemy and eliminate him prior to endangering ground forces. To relegate F-15s to point defense is to waste the asset.

2. Effective Airspace Management - in order to properly fight the battle for air superiority TAC air must have the freedom to utilize its systems to their utmost yet find sanctuary when crossing U.S. lines.

U.S. airspace must allow free ingress-egress of friendly fighters positively and disallow any enemy.

3. Army help with supression of enemy air defenses - in any scenario against a Soviet styled threat, air defenses are multifaceted, deep and many in number. In order to penetrate and effectively attrit reserves, TAC air needs help from Army forces.

In short, HTLD needs TAC air and TAC air needs HTLD concepts. The basic TAC fighter pilot believes that given air superiority and interdiction of reserves that the U.S. Army will chew up their enemy and spit out the pieces. The basic soldier believes that TAC air will guarantee him air superiority and cut off of reserves so that he can defeat the enemy he faces. HTTB/HTLD, unlike single agency within the Army, has the resources to make these two conceptions a reality.

Conclusions

1. HTLD concept forces issues and answers —

By conceptualizing and configuring the high technology force in such that it is heavily reliant on TAC air support for the performance. Of all battlefield tasks, HTLD must directly confront Army/Air Force issues. In order to be an effective fighting force, by its ow admission, HTLD must be able to effectively and efficiently coordinate, interoperate and synchronize with TAC air.

2. HTLD is too dependant on TAC air for Battlefield Tasks —

The high technology force as envisioned at this point is dependent on TAC air to the extent that no battlefield task can be accomplished without some involvement of TAC air. There is evidence to suggest that this notion extends outside HTLD throughout the Army.

3. HTLD will not have the degree of responsiveness and assurance of the air demanded by the concept. —

TAC air will not always be responsive to the demands of Corps or Division. TAC air will be in theater or the JTF to provide air superiority, interdiction, chose air support, reconnaissance and electronic warfare but will not be tied to a specific division or corps. Consequently, HTLD should not expect TAC air to be a key ingredient in the performance of all battlefield tasks.

4. HTTB/HTLD has the capability to dramatically improve the effectiveness of supporting air assets. —

HTTB has both the license and resources to directly confront issues of airspace management, second echelon attack and command and control which plague the entire spectrum of joint operations.

5. The proper use of airpower will greatly enhance the combat effectiveness of HTLD.

6. An Army organization optimized to work with TAC air will greatly enhance the combat effectiveness of TAC air.

7. Greatest probability of success lies in C^3I.

Recommendations

1. HTTB/HTLD should continue to directly confront joint Army/Air Force Issues. --

By excerising its license and resources HTTB has the capability to force answers to doctrinal issues. In working these issues with the Air Force a clear line of communication is necessary with the Air staff as well as with TAC.

2. Concentrate on capabilities to operate under an umbrella of air superiority and behind a TAC air interdiction shield.

3. Enhance C^3I.

Through enhanced C^3I which directly interfaces with Air Force and EAD systems, HTLD will have its greatest chance of success.

4. Air Force should be intimately involved in evolution of HTLD concept. —

Not only TAC but the Air Staff as well should be involved in the development so as to insure cooperation and coordination thought the AF not just in TAC.

5. Joint training must be realistic

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ANNEX A - PART 1

SURVEY QUESTIONNAIRE

TAC AIR SUPPORT OF THE US ARMY

ANNEX A - PART 1

SURVEY QUESTIONNAIRE -
TAC AIR SUPPORT OF THE US ARMY

The following questionnaire was given to a group of 230 U.S. Army officers who are either in the Class of 1982 or on the faculty at the U.S. Army War College. 180 answer sheets were returned. The distribution of respondents with regard to branch, experience and rank is included in the data.

Although the survey population was narrow and no attempt was made to distribute it throughout the Army, it can be said that this population has opinions representative of U.S. Army 0-5 and 0-6 personnel. Furthermore, since Army attendees at the War College are pre-screened by board action and selected for attendance, it can be said that any given class is composed primarily of those officers who have demonstrated success to this point and who the Army expects to rise to positions of command and/or influential staff positions. It is from population groups such as this that future Army leaders will emerge. Therefore, the perceptions and attitudes reflected in this survey should have significance with regard to Army operation and USAF/Army interface.

As in most surveys, analysis of the data sometimes begs more questions than it answers. However, the data reflects attitude toward the use of TAC air in support of Army operations that are important and should be noted by Air Force professionals.

In questions 8-34, it should be noted that the postulated force is more characteristic of mechanized infantry than light infantry. Most aspects of the force, however, are a reflection of the notional configuration of HTLD. If anything, the postulated force should skew the results less in favor of the air than a more accurate replication of HTLD. Still, it is very interesting to note that with a somewhat heavier force, the significant majority of respondents replied that most battlefield tasks could not be performed without a maximum of TAC air support. It was particularly surprising to this Air Force fighter pilot that most infantry and armor respondents needed a maximum of TAC air to perform close combat; that most artillery officers needed a maximum of TAC air to perform fire support; and that most Air Defense officers needed the same to accomplish air defense. It should be noted that the discussion of air defense in the text of the study will put the air defense question in more accurate context than reflected by the survey.

In sum, the survey cannot be held up as the Army attitude with regard to TAC air. It does, however, reflect valid perceptions held by some US Army personnel as to the priorities for the use of TAC air and the degree to which the Army relies on tactical airpower.

SURVEY QUESTIONNAIRE

TAC AIR SUPPORT OF THE US ARMY

I would appreciate your help by taking a thoughtful 30 minutes to complete the attached questionnaire. Results of the survey will form an integral part of the data base for my military study and will be absolutely ananomous.

The questionnaire is in two parts: I - experience, II - what if . . . . .

A blank sheet is attached for any additional thoughts or comments you may have. I solicit your comments.

Thank you for your help.

Tom Browning

1 Incl

TOM BROWNING, Lt Col, USAF
Class of '82
Box 16

PART I EXPERIENCE

1. What is your current duty status?

   1. Active
   2. Reserve
   3. National Guard

2. Grade?

   1. O-4
   2. O-5
   3. O-6
   4. Other

3. What is your basic orientation or identification? (Please answer the one that identifies you best; I realize this is not correct with respect to branch.)

   1. Airborne
   2. Air Defense
   3. Armor
   4. Artillery
   5. Infantry
   6. Mechanized Infantry
   7. Combat Support
   8. Combat Service Support
   9. Other

4. Have you worked with TAC air in combat?

   1. Yes
   2. No

5. Have you worked with TAC air in exercises?

   1. Yes
   2. No

6. Years in service?

   1. Fewer than 10
   2. 10-15
   3. 15-20
   4. 20-25
   5. Over 25

7. Have you ever conducted operations in combat and/or exercises without air superiority?

   1. Yes in combat only
   2. Yes in exercises only
   3. Yes in both
   4. No

PART II - WHAT IF. . .

Please read carefully the postulated situation, select your role and answer in accordance with the given scale. Please be consistent in your role and use same perspective in answering questions 8 thru 34.

MISSION: ATTACK AND DESTROY THE ENEMY

Assume:

1. You are the G-1, G-2, G-3, G-4, G-5 of a corps--whichever is most appropriate for your MOS or alternate.
2. Combat elements--infantry.
3. Threat--Soviet mech/armor threat you are outnumbered 2 to 1.
4. Terrain--mountains--foothills--southwest Asia.
5. Equipment--(major items)
   Bradley Fighting Vehicle, Cobra, 155 Towed, Stinger, Chaparral, MLRS, Blackhawk Mobile Protected Gun (MPG)

QUESTION: To what extent do you need TAC air (air superiority, close air support, interdiction, electronic warfare, reconnaissance)to accomplish your mission with respect to:

8. Command and control.

9. Close combat

10. Fire support

11. Air defense

12. Communications

13. Intelligence and EW

14. Combat support, engineering, mine warfare

15. Combat service support

16. Deception

1	2	3	4	5	6
No TAC Air Needed--We Can Do It Alone	Minimum of TAC Air	Some TAC Air	Maximum TAC Air	Can't Do Without TAC Air	Can't Do in any Case

Please read carefully the postulated situation, select your role and answer in accordance with the given scale. Please be consistent in your role and use same perspective in answering questions 8 thru 34.

MISSION:DELAY

Assume:

1. You are the G-1, G-2, G-3, G-4, G-5 of a corps--whichever is most appropriate for your MOS or alternate.
2. Combat elements--light infantry.
3. Threat--Soviet mech/armor threat--your are outnumbered 2 to 1.
4. Terrain--mountains--foothills--southwest Asia.
5. Equipment--(major items)
   Bradley Fighting Vehicle, Cobra, 155-Towed, Stinger, Chaparral, MLRS, Blackhawk , MPG.

QUESTION: To what extent do you need TAC air (air superiority, close air support, interdiction, electronic warfare, reconnaissance) to accomplish your mission with respect to:

17. Command and control.

18. Close combat

19. Fire support.

20. Air defense.

21. Communications.

22. Intelligence and EW.

23. Combat support, engineering, mine warfare.

24 Combat service support.

25. Deception.

1	2	3	4	5	6
No TAC Air Needed--We Can Do It Alone	Minimum of TAC Air	Some TAC Air	Maximum TAC Air	Can't Do Without TAC Air	Can't Do in any Case

Please read carefully the postulated situation, select your role and answer in accordance with the given scale. Please be consistent in your role and use same perspective in answering questions 8 thru 34.

MISSION: DEFEND AND HOLD TERRAIN

Assume:

1. You are the G-1, G-2, G-3, G-4. G-5 of a corps--whichever is most appropriate for your MOS or alternate.
2. Combat elements--light infantry.
3. Threat--Soviet mech/armor threat--you are outnumbered 2 to 1.
4. Terrain--mountains--foothills--southwest Asia.
5. Equipment (major items)
   Bradley Fighting Vehicle,Cobra, 155-Towed, Stinger, Chaparral, MLRS, Blackhawk, MPG.

QUESTION: To what extent do you need TAC air (air superiority, close air support, interdiction, electronic warfare, reconnaissance) to accomplish your mission with respect to:

26. Command and control.

27. Close combat.

28. Fire support.

29. Air defense.

30. Communications.

31. Intelligence and EW.

32. Combat support, engineering, mine warfare.

33. Combat service support.

34. Deception.

1	2	3	4	5	6
No TAC Air Needed--We Can Do It Alone	Minimum of TAC Air	Some TAC Air	Maximum TAC Air	Can't Do Without TAC Air	Can't Do in any Case

35. From which perspective did you answer questions 8 thru 34?

1. G-1
2. G-2
3. G-3
4. G-4
5. G-5
6. Other

IN THE PREVIOUS SITUATIONS, IF THE MISSION WERE TO ATTACK AND DESTROY:

36. The number one priority I would need from TAC Air in order to accomplish the mission is:

1. Air superiority.
2. Close air support.
3. Interdiction.
4. Electronic warfare.
5. Recce

37. The number two priority is:

1. Air Superiority.
2. Close air support.
3. Interdiction.
4. Electronic warfare.
5. Recce

IN THE PREVIOUS SITUATIONS, IF THE MISSION IS TO DELAY:

38. The number one priority I would need from TAC air in order to accomplish the mission is:

1. Air Superiority.
2. Close air support.
3. Interdiction.
4. Electronic warfare.
5. Recce

39. The number two priority is:

1. Air Superiority.
2. Close air support.
3. Interdiction.
4. Electronic warfare.
5. Recce

IN THE PREVIOUS SITUATIONS, IF THE MISSION IS TO DEFEND:

40. The number one priority I would need from TAC air in order to accomplish the mission is:

1. Air Superiority.
2. Close air support.
3. Interdiction.
4. Electronic warfare.
5 Recce

41. The number two priority is:

1. Air Superiority.
2. Close air support.
3. Interdiction.
4. Electronic warfare.
5. Recce

ANNEX A - PART 2

SURVEY QUESTIONNAIRE

TAC AIR SUPPORT OF THE US ARMY

Gross Results

Q01 CURRENT DUTY STATUS

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
ACTIVE	1	168	93.3	93.3	93.3
RESERVE	2	3	1.7	1.7	95.0
NATIONAL GUARD	3	9	5.0	5.0	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 180 MISSING CASES 0

Q02 GRADE

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
O-4	1	1	0.6	0.6	0.6
O-5	2	99	55.0	55.0	55.6
O-6	3	80	44.4	44.4	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 180 MISSING CASES 0

003 BASIC ORIENTATION OR IDENTIFICATION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
AIRBORNE	1	10	5.6	5.6	5.6
AIR DEFENSE	2	9	5.0	5.0	10.6
ARMOR	3	20	11.1	11.2	21.8
ARTILLERY	4	24	13.3	13.4	35.2
INFANTRY	5	28	15.6	15.6	50.8
MECH INFANTRY	6	11	6.1	6.1	57.0
COMBAT SUPPORT	7	41	22.8	22.9	79.9
SERVICE SUPPORT	8	32	17.8	17.9	97.8
OTHER	9	4	2.2	2.2	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

004 WORKED WITH TAC AIR IN COMBAT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
YES	1	117	65.0	66.5	66.5
NO	2	59	32.8	33.5	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

005 WORKED WITH TAC AIR IN EXERCISES

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
YES	1	137	76.1	77.8	77.8
NO	2	39	21.7	22.2	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

006 YEARS IN SERVICE

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
10-15	2	2	1.1	1.1	1.1
15-20	3	62	34.4	34.4	35.6
20-25	4	87	48.3	48.3	83.9
OVER 25	5	29	16.1	16.1	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 180 MISSING CASES 0

007 CONDUCTED OP'S WITHOUT AIR SUPERIORITY

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
YES-EXERCISE ONLY	2	64	35.6	35.6	35.6
YES IN BOTH	3	6	3.3	3.3	38.9
NO	4	110	61.1	61.1	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 180 MISSING CASES 0

008 ATTACK: COMMAND AND CONTROL

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	45	25.0	25.1	25.1
SOME TAC AIR	3	64	35.6	35.8	60.9
MAXIMUM-MUST TAC AIR	5	70	38.9	39.1	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

009 ATTACK: CLOSE COMBAT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	10	5.6	5.7	5.7
SOME TAC AIR	3	35	19.4	20.0	25.7
MAXIMUM-MUST TAC AIR	5	130	72.2	74.3	100.0
OUT OF RANGE		5	2.8	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 175 MISSING CASES 5

010 ATTACK: FIRE SUPPORT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	6	3.3	3.4	3.4
SOME TAC AIR	3	49	27.2	27.8	31.3
MAXIMUM-MUST TAC AIR	5	121	67.2	68.8	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

011 ATTACK: AIR DEFENSE

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	11	6.1	6.2	6.2
SOME TAC AIR	3	29	16.1	16.4	22.6
MAXIMUM-MUST TAC AIR	5	137	76.1	77.4	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

012 ATTACK: COMMUNICATIONS

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	76	42.2	42.5	42.5
SOME TAC AIR	3	65	36.1	36.3	78.8
MAXIMUM-MUST TAC AIR	5	38	21.1	21.2	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

013 ATTACK: INTELLIGENCE AND EW

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	21	11.7	11.9	11.9
SOME TAC AIR	3	65	36.1	36.7	48.6
MAXIMUM-MUST TAC AIR	5	91	50.6	51.4	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

014 ATTACK: COMBAT SUPPORT, ENGINEERING

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	39	21.7	21.9	21.9
SOME TAC AIR	3	84	46.7	47.2	69.1
MAXIMUM-MUST TAC AIR	5	55	30.6	30.9	100.0
OUT OF RANGE		2	1.1	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 178 MISSING CASES 2

015 ATTACK: COMBAT SERVICE SUPPORT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	62	34.4	34.8	34.8
SOME TAC AIR	3	58	32.2	32.6	67.4
MAXIMUM-MUST TAC AIR	5	58	32.2	32.6	100.0
OUT OF RANGE		2	1.1	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 178 MISSING CASES 2

016 ATTACK: DECEPTION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	58	32.2	32.8	32.8
SOME TAC AIR	3	74	41.1	41.8	74.6
MAXIMUM-MUST TAC AIR	5	45	25.0	25.4	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

017 DELAY: COMMAND AND CONTROL

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	45	25.0	25.1	25.1
SOME TAC AIR	3	56	31.1	31.3	56.4
MAXIMUM-MUST TAC AIR	5	78	43.3	43.6	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

018 DELAY: CLOSE COMBAT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	8	4.4	4.5	4.5
SOME TAC AIR	3	31	17.2	17.5	22.0
MAXIMUM-MUST TAC AIR	5	138	76.7	78.0	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

019 DELAY: FIRE SUPPORT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	4	2.2	2.3	2.3
SOME TAC AIR	3	38	21.1	21.6	23.9
MAXIMUM-MUST TAC AIR	5	134	74.4	76.1	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

020 DELAY: AIR DEFENSE

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	12	6.7	6.8	6.8
SOME TAC AIR	3	29	16.1	16.5	23.3
MAXIMUM-MUST TAC AIR	5	135	75.0	76.7	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

021 DELAY: COMMUNICATIONS

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	63	35.0	35.4	35.4
SOME TAC AIR	3	70	38.9	39.3	74.7
MAXIMUM-MUST TAC AIR	5	45	25.0	25.3	100.0
OUT OF RANGE		2	1.1	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 178 MISSING CASES 2

022 DELAY: INTELLIGENCE AND EW

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	29	16.1	16.3	16.3
SOME TAC AIR	3	56	31.1	31.5	47.8
MAXIMUM-MUST TAC AIR	5	93	51.7	52.2	100.0
OUT OF RANGE		2	1.1	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 178 MISSING CASES 2

Q23 DELAY: COMBAT SUPPORT, ENGINEERING

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	34	18.9	19.1	19.1
SOME TAC AIR	3	68	37.8	38.2	57.3
MAXIMUM-MUST TAC AIR	5	76	42.2	42.7	100.0
OUT OF RANGE		2	1.1	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 178 MISSING CASES 2

Q24 DELAY: COMBAT SERVICE SUPPORT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	60	33.3	33.5	33.5
SOME TAC AIR	3	60	33.3	33.5	67.0
MAXIMUM-MUST TAC AIR	5	59	32.8	33.0	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

Q25 DELAY: DECEPTION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	52	28.9	29.5	29.5
SOME TAC AIR	3	69	38.3	39.2	68.8
MAXIMUM-MUST TAC AIR	5	55	30.6	31.3	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

026 DEFEND! COMMAND AND CONTROL

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	55	30.6	31.1	31.1
SOME TAC AIR	3	54	30.0	30.5	61.6
MAXIMUM-MUST TAC AIR	5	68	37.8	38.4	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

027 DEFEND! CLOSE COMBAT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	16	8.9	9.1	9.1
SOME TAC AIR	3	21	11.7	11.9	21.0
MAXIMUM-MUST TAC AIR	5	139	77.2	79.0	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

028 DEFEND! FIRE SUPPORT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	7	3.9	4.0	4.0
SOME TAC AIR	3	31	17.2	17.5	21.5
MAXIMUM-MUST TAC AIR	5	139	77.2	78.5	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

029 DEFEND: AIR DEFENSE

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	17	9.4	9.6	9.6
SOME TAC AIR	3	24	13.3	13.6	23.2
MAXIMUM-MUST TAC AIR	5	136	75.6	76.8	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

030 DEFEND: COMMUNICATIONS

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	71	39.4	39.7	39.7
SOME TAC AIR	3	60	33.3	33.5	73.2
MAXIMUM-MUST TAC AIR	5	48	26.7	26.8	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

031 DEFEND: INTELLIGENCE AND EW

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	25	13.9	14.1	14.1
SOME TAC AIR	3	64	35.6	36.2	50.3
MAXIMUM-MUST TAC AIR	5	88	48.9	49.7	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

032 DEFEND: COMBAT SUPPORT, ENGINEERING

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	48	26.7	27.3	27.3
SOME TAC AIR	3	56	31.1	31.8	59.1
MAXIMUM-MUST TAC AIR	5	72	40.0	40.9	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

033 DEFEND: COMBAT SERVICE SUPPORT

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	66	36.7	37.3	37.3
SOME TAC AIR	3	52	28.9	29.4	66.7
MAXIMUM-MUST TAC AIR	5	59	32.8	33.3	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

034 DEFEND: DECEPTION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
NO-MINIMUM TAC AIR	1	63	35.0	35.8	35.8
SOME TAC AIR	3	62	34.4	35.2	71.0
MAXIMUM-MUST TAC AIR	5	51	28.3	29.0	100.0
OUT OF RANGE		4	2.2	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 176 MISSING CASES 4

035 PERSPECTIVE QUESTIONS 3-34 WERE ANSWERED

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
G-1	1	17	9.4	9.6	9.6
G-2	2	19	10.6	10.7	20.3
G-3	3	110	61.1	62.1	82.5
G-4	4	21	11.7	11.9	94.4
G-5	5	1	0.6	0.6	94.9
OTHER	6	9	5.0	5.1	100.0
OUT OF RANGE		3	1.7	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 177 MISSING CASES 3

036 ATTACK # 1 PRIORITY TOWARD MISSION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
AIR SUPERIORITY	1	137	76.1	76.5	76.5
CLOSE AIR SUPPORT	2	27	15.0	15.1	91.6
INTERDICTION	3	10	5.6	5.6	97.2
ELECTRONIC WARFARE	4	1	0.6	0.6	97.8
RECCE	5	4	2.2	2.2	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

Q37 ATTACK: # 2 PRIORITY TOWARD MISSION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
AIR SUPERIORITY	1	23	12.8	12.9	12.9
CLOSE AIR SUPPORT	2	87	48.3	48.9	61.8
INTERDICTION	3	53	29.4	29.8	91.6
ELECTRONIC WARFARE	4	6	3.3	3.4	94.9
RECCE	5	9	5.0	5.1	100.0
OUT OF RANGE		2	1.1	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 178 MISSING CASES 2

Q38 DELAY: # 1 PRIORITY TOWARD MISSION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
AIR SUPERIORITY	1	114	63.3	63.7	63.7
CLOSE AIR SUPPORT	2	37	20.6	20.7	84.4
INTERDICTION	3	23	12.8	12.8	97.2
ELECTRONIC WARFARE	4	2	1.1	1.1	98.3
RECCE	5	3	1.7	1.7	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

039 DELAY! # 2 PRIORITY TOWARD MISSION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
AIR SUPERIORITY	1	19	10.6	10.7	10.7
CLOSE AIR SUPPORT	2	66	36.7	37.1	47.8
INTERDICTION	3	63	35.0	35.4	83.1
ELECTRONIC WARFARE	4	10	5.6	5.6	88.8
RECCE	5	20	11.1	11.2	100.0
OUT OF RANGE		2	1.1	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 178 MISSING CASES 2

040 DEFEND! # 1 PRIORITY TOWARD MISSION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
AIR SUPERIORITY	1	118	65.6	65.9	65.9
CLOSE AIR SUPPORT	2	33	18.3	18.4	84.4
INTERDICTION	3	21	11.7	11.7	96.1
ELECTRONIC WARFARE	4	2	1.1	1.1	97.2
RECCE	5	5	2.8	2.8	100.0
OUT OF RANGE		1	0.6	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 179 MISSING CASES 1

Q41 DEFEND! # 1 PRIORITY TOWARD MISSION

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
AIR SUPERIORITY	1	21	11.7	12.1	12.1
CLOSE AIR SUPPORT	2	72	40.0	41.4	53.4
INTERDICTION	3	64	35.6	36.8	90.2
ELECTRONIC WARFARE	4	7	3.9	4.0	94.3
RECCE	5	10	5.6	5.7	100.0
OUT OF RANGE		6	3.3	MISSING	100.0
	TOTAL	180	100.0	100.0	

VALID CASES 174 MISSING CASES 6

ANNEX A - PART 3

SURVEY QUESTIONNAIRE

TAC AIR SUPPORT OF THE US ARMY

Correlation of Responses to Questions
7-34 by Branch Affiliation

Q03

Q07	COUNT / ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT S UPPORT	SERVICE SUPPORT	ROW TOTAL
		2	3	4	5	7	8	
2		2	13	14	18	12	4	63
YES-EXERCISE ONL		3.2	20.6	22.2	28.6	19.0	6.3	36.0
		22.2	65.0	58.3	36.7	29.3	12.5	
		1.1	7.4	8.0	10.3	6.9	2.3	
3		0	1	0	3	0	1	5
YES IN BOTH		0.	20.0	0.	60.0	0.	20.0	2.9
		0.	5.0	0.	6.1	0.	3.1	
		0.	0.6	0.	1.7	0.	0.6	
4		7	6	10	28	29	27	107
NO		6.5	5.6	9.3	26.2	27.1	25.2	61.1
		77.8	30.0	41.7	57.1	70.7	84.4	
		4.0	3.4	5.7	16.0	16.6	15.4	
COLUMN TOTAL		9	20	24	49	41	32	175
		5.1	11.4	13.7	28.0	23.4	18.3	100.0

Q03

Q08	COUNT / ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT S UPPORT	SERVICE SUPPORT	ROW TOTAL
		2	3	4	5	7	8	
1		0	4	5	8	0	4	21
NO-MINIMUM TAC A		0.	19.0	23.8	38.1	0.	19.0	12.1
		0.	20.0	20.8	16.3	0.	12.9	
		0.	2.3	2.9	4.6	0.	2.3	
2		0	2	2	9	5	4	22
MINIMUM TAC AIR		0.	9.1	9.1	40.9	22.7	18.2	12.6
		0.	10.0	8.3	18.4	12.2	12.9	
		0.	1.1	1.1	5.2	2.9	2.3	
3		4	8	10	14	17	11	64
SOME TAC AIR		6.3	12.5	15.6	21.9	26.6	17.2	36.8
		44.4	40.0	41.7	28.6	41.5	35.5	
		2.3	4.6	5.7	8.0	9.8	6.3	
4		3	4	4	10	9	4	34
MAXIMUM TAC AIR		8.8	11.8	11.8	29.4	26.5	11.8	19.5
		33.3	20.0	16.7	20.4	22.0	12.9	
		1.7	2.3	2.3	5.7	5.2	2.3	
5		2	2	3	8	10	8	33
MAXIMUM-MUST TAC		6.1	6.1	9.1	24.2	30.3	24.2	19.0
		22.2	10.0	12.5	16.3	24.4	25.8	
		1.1	1.1	1.7	4.6	5.7	4.6	
COLUMN TOTAL		9	20	24	49	41	31	174
		5.2	11.5	13.8	28.2	23.6	17.8	100.0

003

009		2	3	4	5	7	8	ROW TOTAL
	1	0	0	0	2	0	0	2
NO-MINIMUM TAC A		0.	0.	0.	100.0	0.	0.	1.2
		0.	0.	0.	4.1	0.	0.	
		0.	0.	0.	1.2	0.	0.	
	2	0	2	1	1	3	1	8
MINIMUM TAC AIR		0.	25.0	12.5	12.5	37.5	12.5	4.7
		0.	10.0	4.2	2.0	7.7	3.4	
		0.	1.2	0.6	0.6	1.8	0.6	
	3	1	6	4	15	6	2	34
SOME TAC AIR		2.9	17.6	11.8	44.1	17.6	5.9	20.0
		11.1	30.0	16.7	30.6	15.4	6.9	
		0.6	3.5	2.4	8.8	3.5	1.2	
	4	4	9	9	19	14	10	65
MAXIMUM TAC AIR		6.2	13.8	13.8	29.2	21.5	15.4	38.2
		44.4	45.0	37.5	38.8	35.9	34.5	
		2.4	5.3	5.3	11.2	8.2	5.9	
	5	4	3	10	12	16	16	61
MAXIMUM-MUST TAC		6.6	4.9	16.4	19.7	26.2	26.2	35.9
		44.4	15.0	41.7	24.5	41.0	55.2	
		2.4	1.8	5.9	7.1	9.4	9.4	
COLUMN TOTAL		9	20	24	49	39	29	170
		5.3	11.8	14.1	28.8	22.9	17.1	100.0

003

010		2	3	4	5	7	8	ROW TOTAL
	1	0	0	0	0	1	0	1
NO-MINIMUM TAC A		0.	0.	0.	0.	100.0	0.	0.6
		0.	0.	0.	0.	2.5	0.	
		0.	0.	0.	0.	0.6	0.	
	2	1	1	0	2	0	1	5
MINIMUM TAC AIR		20.0	20.0	0.	40.0	0.	20.0	2.9
		11.1	5.0	0.	4.1	0.	3.4	
		0.6	0.6	0.	1.2	0.	0.6	
	3	3	4	4	14	14	10	49
SOME TAC AIR		6.1	8.2	8.2	28.6	28.6	20.4	28.7
		33.3	20.0	16.7	28.6	35.0	34.5	
		1.8	2.3	2.3	8.2	8.2	5.8	
	4	3	11	10	20	16	9	69
MAXIMUM TAC AIR		4.3	15.9	14.5	29.0	23.2	13.0	40.4
		33.3	55.0	41.7	40.8	40.0	31.0	
		1.8	6.4	5.8	11.7	9.4	5.3	
	5	2	4	10	13	9	9	47
MAXIMUM-MUST TAC		4.3	8.5	21.3	27.7	19.1	19.1	27.5
		22.2	20.0	41.7	26.5	22.5	31.0	
		1.2	2.3	5.8	7.6	5.3	5.3	
COLUMN TOTAL		9	20	24	49	40	29	171
		5.3	11.7	14.0	28.7	23.4	17.0	100.0

Q03

Q11		AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT S UPPORT	SERVICE SUPPORT	ROW TOTAL
		2	3	4	5	7	8	
1	COUNT	0	1	0	0	2	0	3
NO-MINIMUM TAC A	ROW PCT	0.	33.3	0.	0.	66.7	0.	1.7
	COL PCT	0.	5.0	0.	0.	4.9	0.	
	TOT PCT	0.	0.6	0.	0.	1.2	0.	
2	COUNT	3	2	0	0	3	0	8
MINIMUM TAC AIR	ROW PCT	37.5	25.0	0.	0.	37.5	0.	4.7
	COL PCT	33.3	10.0	0.	0.	7.3	0.	
	TOT PCT	1.7	1.2	0.	0.	1.7	0.	
3	COUNT	0	2	4	4	10	8	28
SOME TAC AIR	ROW PCT	0.	7.1	14.3	14.3	35.7	28.6	16.3
	COL PCT	0.	10.0	16.7	8.2	24.4	27.6	
	TOT PCT	0.	1.2	2.3	2.3	5.8	4.7	
4	COUNT	2	6	5	18	11	12	54
MAXIMUM TAC AIR	ROW PCT	3.7	11.1	9.3	33.3	20.4	22.2	31.4
	COL PCT	22.2	30.0	20.8	36.7	26.8	41.4	
	TOT PCT	1.2	3.5	2.9	10.5	6.4	7.0	
5	COUNT	4	9	15	27	15	9	79
MAXIMUM-MUST TAC	ROW PCT	5.1	11.4	19.0	34.2	19.0	11.4	45.9
	COL PCT	44.4	45.0	62.5	55.1	36.6	31.0	
	TOT PCT	2.3	5.2	8.7	15.7	8.7	5.2	
COLUMN TOTAL		9	20	24	49	41	29	172
		5.2	11.6	14.0	28.5	23.8	16.9	100.0

Q03

Q12		AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT S UPPORT	SERVICE SUPPORT	ROW TOTAL
		2	3	4	5	7	8	
1	COUNT	1	3	4	6	7	4	25
NO-MINIMUM TAC A	ROW PCT	4.0	12.0	16.0	24.0	28.0	16.0	14.4
	COL PCT	11.1	15.0	16.7	12.2	17.1	12.9	
	TOT PCT	0.6	1.7	2.3	3.4	4.0	2.3	
2	COUNT	2	10	7	14	10	6	49
MINIMUM TAC AIR	ROW PCT	4.1	20.4	14.3	28.6	20.4	12.2	28.2
	COL PCT	22.2	50.0	29.2	28.6	24.4	19.4	
	TOT PCT	1.1	5.7	4.0	8.0	5.7	3.4	
3	COUNT	4	5	9	18	16	13	65
SOME TAC AIR	ROW PCT	6.2	7.7	13.8	27.7	24.6	20.0	37.4
	COL PCT	44.4	25.0	37.5	36.7	39.0	41.9	
	TOT PCT	2.3	2.9	5.2	10.3	9.2	7.5	
4	COUNT	1	2	1	8	5	4	21
MAXIMUM TAC AIR	ROW PCT	4.8	9.5	4.8	38.1	23.8	19.0	12.1
	COL PCT	11.1	10.0	4.2	16.3	12.2	12.9	
	TOT PCT	0.6	1.1	0.6	4.6	2.9	2.3	
5	COUNT	1	0	3	3	3	4	14
MAXIMUM-MUST TAC	ROW PCT	7.1	0.	21.4	21.4	21.4	28.6	8.0
	COL PCT	11.1	0.	12.5	6.1	7.3	12.9	
	TOT PCT	0.6	0.	1.7	1.7	1.7	2.3	
COLUMN TOTAL		9	20	24	49	41	31	174
		5.2	11.5	13.8	28.2	23.6	17.8	100.0

Q02

Q13	COUNT / ROW PCT / COL PCT / TOT PCT	2 AIR DEFE INSE	3 ARMOR	4 ARTILLERY	5 INFANTRY	7 COMBAT SUPPORT	8 SERVICE SUPPORT	ROW TOTAL
1		0	1	0	2	1	1	5
NO-MINIMUM TAC A		0.	20.0	0.	40.0	20.0	20.0	2.9
		0.	5.0	0.	4.2	2.4	3.3	
		0.	0.6	0.	1.2	0.6	0.6	
2		1	1	2	5	4	2	15
MINIMUM TAC AIR		6.7	6.7	13.3	33.3	26.7	13.3	8.7
		11.1	5.0	8.3	10.4	9.8	6.7	
		0.6	0.6	1.2	2.9	2.3	1.2	
3		5	8	8	19	15	9	64
SOME TAC AIR		7.8	12.5	12.5	29.7	23.4	14.1	37.2
		55.6	40.0	33.3	39.6	36.6	30.0	
		2.9	4.7	4.7	11.0	8.7	5.2	
4		2	8	11	12	11	9	53
MAXIMUM TAC AIR		3.8	15.1	20.8	22.6	20.8	17.0	30.8
		22.2	40.0	45.8	25.0	26.8	30.0	
		1.2	4.7	6.4	7.0	6.4	5.2	
5		1	2	3	10	10	9	35
MAXIMUM-MUST TAC		2.9	5.7	8.6	28.6	28.6	25.7	20.3
		11.1	10.0	12.5	20.8	24.4	30.0	
		0.6	1.2	1.7	5.8	5.8	5.2	
COLUMN TOTAL		9 5.2	20 11.6	24 13.9	48 27.9	41 23.8	30 17.4	172 100.0

Q03

Q14	COUNT / ROW PCT / COL PCT / TOT PCT	2 AIR DEFE INSE	3 ARMOR	4 ARTILLERY	5 INFANTRY	7 COMBAT SUPPORT	8 SERVICE SUPPORT	ROW TOTAL
1		0	2	2	3	2	1	10
NO-MINIMUM TAC A		0.	20.0	20.0	30.0	20.0	10.0	5.8
		0.	10.0	8.3	6.1	4.9	3.3	
		0.	1.2	1.2	1.7	1.2	0.6	
2		1	4	6	9	4	4	28
MINIMUM TAC AIR		3.6	14.3	21.4	32.1	14.3	14.3	16.2
		11.1	20.0	25.0	18.4	9.8	13.3	
		0.6	2.3	3.5	5.2	2.3	2.3	
3		4	12	11	23	24	10	84
SOME TAC AIR		4.8	14.3	13.1	27.4	28.6	11.9	48.6
		44.4	60.0	45.8	46.9	58.5	33.3	
		2.3	6.9	6.4	13.3	13.9	5.8	
4		2	2	4	10	7	9	34
MAXIMUM TAC AIR		5.9	5.9	11.8	29.4	20.6	26.5	19.7
		22.2	10.0	16.7	20.4	17.1	30.0	
		1.2	1.2	2.3	5.8	4.0	5.2	
5		2	0	1	4	4	6	17
MAXIMUM-MUST TAC		11.8	0.	5.9	23.5	23.5	35.3	9.8
		22.2	0.	4.2	8.2	9.8	20.0	
		1.2	0.	0.6	2.3	2.3	3.5	
COLUMN TOTAL		9 5.2	20 11.6	24 13.9	49 28.3	41 23.7	30 17.3	173 100.0

Q02

Q15	COUNT / ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE 2	ARMOR 3	ARTILLERY 4	INFANTRY 5	COMBAT SUPPORT 7	SERVICE SUPPORT 8	ROW TOTAL
1		0	2	5	8	5	1	21
NO-MINIMUM TAC A		0.0	9.5	23.8	38.1	23.8	4.8	12.1
		0.0	10.5	20.0	16.3	12.2	3.2	
		0.0	1.2	2.9	4.6	2.9	0.6	
2		2	4	5	10	8	11	40
MINIMUM TAC AIR		5.0	10.0	12.5	25.0	20.0	27.5	23.1
		22.2	21.1	20.8	20.4	19.5	35.5	
		1.2	2.3	2.9	5.8	4.6	6.4	
3		3	8	8	20	13	6	58
SOME TAC AIR		5.2	13.8	13.8	34.5	22.4	10.3	33.5
		33.3	42.1	33.3	40.8	31.7	19.4	
		1.7	4.6	4.6	11.6	7.5	3.5	
4		1	5	5	4	14	4	33
MAXIMUM TAC AIR		3.0	15.2	15.2	12.1	42.4	12.1	19.1
		11.1	26.3	20.8	8.2	34.1	12.9	
		0.6	2.9	2.9	2.3	8.1	2.3	
5		3	0	1	7	1	9	21
MAXIMUM-MUST TAC		14.3	0.0	4.8	33.3	4.8	42.9	12.1
		33.3	0.0	4.2	14.3	2.4	29.0	
		1.7	0.0	0.6	4.0	0.6	5.2	
COLUMN TOTAL		9	19	24	49	41	31	173
		5.2	11.0	13.9	28.3	23.7	17.9	100.0

Q03

Q16	COUNT / ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE 2	ARMOR 3	ARTILLERY 4	INFANTRY 5	COMBAT SUPPORT 7	SERVICE SUPPORT 8	ROW TOTAL
1		0	1	1	8	3	1	14
NO-MINIMUM TAC A		0.0	7.1	7.1	57.1	21.4	7.1	8.1
		0.0	5.0	4.3	16.3	7.3	3.3	
		0.0	0.6	0.6	4.7	1.7	0.6	
2		1	5	10	9	11	7	43
MINIMUM TAC AIR		2.3	11.6	23.3	20.9	25.6	16.3	25.0
		11.1	25.0	43.5	18.4	26.8	23.3	
		0.6	2.9	5.8	5.2	6.4	4.1	
3		5	8	8	21	19	12	73
SOME TAC AIR		6.8	11.0	11.0	28.8	26.0	16.4	42.4
		55.6	40.0	34.8	42.9	46.3	40.0	
		2.9	4.7	4.7	12.2	11.0	7.0	
4		2	3	2	7	5	6	25
MAXIMUM TAC AIR		8.0	12.0	8.0	28.0	20.0	24.0	14.5
		22.2	15.0	8.7	14.3	12.2	20.0	
		1.2	1.7	1.2	4.1	2.9	3.5	
5		1	3	2	4	3	4	17
MAXIMUM-MUST TAC		5.9	17.6	11.8	23.5	17.6	23.5	9.9
		11.1	15.0	8.7	8.2	7.3	13.3	
		0.6	1.7	1.2	2.3	1.7	2.3	
COLUMN TOTAL		9	20	23	49	41	30	172
		5.2	11.6	13.4	28.5	23.8	17.4	100.0

Q03

Q17		1 AIR DEFE INSE	2 ARMOR	3 ARTILLERY	4 INFANTRY	5 COMBAT SUPPORT	7 SERVICE SUPPORT	8 ROW TOTAL
1	COUNT	1	3	6	4	0	2	15
NO-MINIMUM TAC A	ROW PCT	6.7	20.0	33.3	26.7	0.	13.3	8.6
	COL PCT	11.1	15.0	20.8	8.2	0.	6.5	
	TOT PCT	0.6	1.7	2.9	2.3	0.	1.1	
2	COUNT	1	4	3	8	9	4	29
MINIMUM TAC AIR	ROW PCT	3.4	13.8	10.3	27.6	31.0	13.8	16.7
	COL PCT	11.1	20.0	12.5	16.3	22.0	12.9	
	TOT PCT	0.5	2.3	1.7	4.6	5.2	2.3	
3	COUNT	2	8	6	15	13	12	56
SOME TAC AIR	ROW PCT	3.6	14.3	10.7	26.8	23.2	21.4	32.2
	COL PCT	22.2	40.0	25.0	30.6	31.7	38.7	
	TOT PCT	1.1	4.6	3.4	8.6	7.5	6.9	
4	COUNT	2	3	7	12	13	6	43
MAXIMUM TAC AIR	ROW PCT	4.7	7.0	16.3	27.9	30.2	14.0	24.7
	COL PCT	22.2	15.0	29.2	24.5	31.7	19.4	
	TOT PCT	1.1	1.7	4.0	6.9	7.5	3.4	
5	COUNT	3	2	3	10	6	7	31
MAXIMUM-MUST TAC	ROW PCT	9.7	6.5	9.7	32.3	19.4	22.6	17.8
	COL PCT	33.3	10.0	12.5	20.4	14.6	22.6	
	TOT PCT	1.7	1.1	1.7	5.7	3.4	4.0	
COLUMN TOTAL		9	20	24	49	41	31	174
		5.2	11.5	13.8	28.2	23.6	17.8	100.0

Q03

Q18		1 AIR DEFE INSE	2 ARMOR	3 ARTILLERY	4 INFANTRY	5 COMBAT SUPPORT	7 SERVICE SUPPORT	8 ROW TOTAL
1	COUNT	0	1	0	1	0	0	2
NO-MINIMUM TAC A	ROW PCT	0.	50.0	0.	50.0	0.	0.	1.2
	COL PCT	0.	5.0	0.	2.0	0.	0.	
	TOT PCT	0.	0.6	0.	0.6	0.	0.	
2	COUNT	0	0	1	1	3	0	5
MINIMUM TAC AIR	ROW PCT	0.	0.	20.0	20.0	60.0	0.	2.9
	COL PCT	0.	0.	4.2	2.0	7.3	0.	
	TOT PCT	0.	0.	0.6	0.6	1.7	0.	
3	COUNT	2	4	7	8	8	2	31
SOME TAC AIR	ROW PCT	6.5	12.9	22.6	25.8	25.8	6.5	18.0
	COL PCT	22.2	20.0	29.2	16.3	19.5	6.9	
	TOT PCT	1.2	2.3	4.1	4.7	4.7	1.2	
4	COUNT	3	10	9	20	13	16	71
MAXIMUM TAC AIR	ROW PCT	4.2	14.1	12.7	28.2	18.3	22.5	41.3
	COL PCT	33.3	50.0	37.5	40.8	31.7	55.2	
	TOT PCT	1.7	5.8	5.2	11.6	7.6	9.3	
5	COUNT	4	5	7	19	17	11	63
MAXIMUM-MUST TAC	ROW PCT	6.3	7.9	11.1	30.2	27.0	17.5	36.6
	COL PCT	44.4	25.0	29.2	38.8	41.5	37.9	
	TOT PCT	2.3	2.9	4.1	11.0	9.9	6.4	
COLUMN TOTAL		9	20	24	49	41	29	172
		5.2	11.6	14.0	28.5	23.8	16.9	100.0

Q03

Q19

ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE (2)	ARMOR (3)	ARTILLERY (4)	INFANTRY (5)	COMBAT S UPPORT (7)	SERVICE SUPPORT (8)	ROW TOTAL
1 NO-MINIMUM TAC A	0	1	0	0	0	0	1
	0.	100.0	0.	0.	0.	0.	0.6
	0.	5.0	0.	0.	0.	0.	
	0.	0.6	0.	0.	0.	0.	
2 MINIMUM TAC AIR	0	1	1	0	0	1	3
	0.	33.3	33.3	0.	0.	33.3	1.8
	0.	5.0	4.2	0.	0.	3.4	
	0.	0.6	0.6	0.	0.	0.6	
3 SOME TAC AIR	2	4	5	7	13	6	37
	5.4	10.8	13.5	18.9	35.1	16.2	21.6
	22.2	20.0	20.8	14.3	32.5	20.7	
	1.2	2.3	2.9	4.1	7.6	3.5	
4 MAXIMUM TAC AIR	3	7	10	24	19	13	76
	3.9	9.2	13.2	31.6	25.0	17.1	44.4
	33.3	35.0	41.7	49.0	47.5	44.8	
	1.8	4.1	5.8	14.0	11.1	7.6	
5 MAXIMUM-MUST TAC	4	7	8	18	8	9	54
	7.4	13.0	14.8	33.3	14.8	16.7	31.6
	44.4	35.0	33.3	36.7	20.0	31.0	
	2.3	4.1	4.7	10.5	4.7	5.2	
COLUMN TOTAL	9	20	24	49	40	29	171
	5.3	11.7	14.0	28.7	23.4	17.0	100.0

Q03

Q20

ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE (2)	ARMOR (3)	ARTILLERY (4)	INFANTRY (5)	COMBAT S UPPORT (7)	SERVICE SUPPORT (8)	ROW TOTAL
1 NO-MINIMUM TAC A	0	1	0	0	0	0	1
	0.	100.0	0.	0.	0.	0.	0.6
	0.	5.3	0.	0.	0.	0.	
	0.	0.6	0.	0.	0.	0.	
2 MINIMUM TAC AIR	2	1	2	1	4	1	11
	18.2	9.1	18.2	9.1	36.4	9.1	6.4
	22.2	5.3	8.3	2.0	9.8	3.4	
	1.2	0.6	1.2	0.6	2.3	0.6	
3 SOME TAC AIR	1	3	2	6	8	8	28
	3.6	10.7	7.1	21.4	28.6	28.6	16.4
	11.1	15.8	8.3	12.2	19.5	27.6	
	0.6	1.8	1.2	3.5	4.7	4.7	
4 MAXIMUM TAC AIR	2	7	8	19	13	9	58
	3.4	12.1	13.8	32.8	22.4	15.5	33.9
	22.2	36.8	33.3	38.8	31.7	31.0	
	1.2	4.1	4.7	11.1	7.6	5.3	
5 MAXIMUM-MUST TAC	4	7	12	23	16	11	73
	5.5	9.6	16.4	31.5	21.9	15.1	42.7
	44.4	36.8	50.0	46.9	39.0	37.9	
	2.3	4.1	7.0	13.5	9.4	6.4	
COLUMN TOTAL	9	19	24	49	41	29	171
	5.3	11.1	14.0	28.7	24.0	17.0	100.0

Q03

Q21	COUNT / ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT SUPPORT	SERVICE SUPPORT	ROW TOTAL
		2	3	4	5	7	8	
1	COUNT	1	3	5	5	3	4	21
NO-MINIMUM TAC A	ROW PCT	4.8	14.3	23.8	23.8	14.3	19.0	12.1
	COL PCT	11.1	15.0	20.8	10.2	7.5	12.9	
	TOT PCT	0.6	1.7	2.9	2.9	1.7	2.3	
2	COUNT	0	10	5	9	11	6	41
MINIMUM TAC AIR	ROW PCT	0.	24.4	12.2	22.0	26.8	14.6	23.7
	COL PCT	0.	50.0	20.8	18.4	27.5	19.4	
	TOT PCT	0.	5.8	2.9	5.2	6.4	3.5	
3	COUNT	4	4	9	23	16	13	69
SOME TAC AIR	ROW PCT	5.8	5.8	13.0	33.3	23.2	18.8	39.9
	COL PCT	44.4	20.0	37.5	46.9	40.0	41.9	
	TOT PCT	2.3	2.3	5.2	13.3	9.2	7.5	
4	COUNT	2	3	3	8	7	3	26
MAXIMUM TAC AIR	ROW PCT	7.7	11.5	11.5	30.8	26.9	11.5	15.0
	COL PCT	22.2	15.0	12.5	16.3	17.5	9.7	
	TOT PCT	1.2	1.7	1.7	4.6	4.0	1.7	
5	COUNT	2	0	2	4	3	5	16
MAXIMUM-MUST TAC	ROW PCT	12.5	0.	12.5	25.0	18.8	31.3	9.2
	COL PCT	22.2	0.	8.3	8.2	7.5	16.1	
	TOT PCT	1.2	0.	1.2	2.3	1.7	2.9	
COLUMN TOTAL		9	20	24	49	40	31	173
		5.2	11.6	13.9	28.3	23.1	17.9	100.0

Q03

Q22	COUNT / ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT SUPPORT	SERVICE SUPPORT	ROW TOTAL
		2	3	4	5	7	8	
1	COUNT	0	1	0	2	0	0	3
NO-MINIMUM TAC A	ROW PCT	0.	33.3	0.	66.7	0.	0.	1.7
	COL PCT	0.	5.0	0.	4.1	0.	0.	
	TOT PCT	0.	0.6	0.	1.2	0.	0.	
2	COUNT	2	3	3	4	6	7	25
MINIMUM TAC AIR	ROW PCT	8.0	12.0	12.0	16.0	24.0	28.0	14.5
	COL PCT	22.2	15.0	12.5	8.2	14.6	23.3	
	TOT PCT	1.2	1.7	1.7	2.3	3.5	4.0	
3	COUNT	3	7	7	21	12	5	55
SOME TAC AIR	ROW PCT	5.5	12.7	12.7	38.2	21.8	9.1	31.8
	COL PCT	33.3	35.0	29.2	42.9	29.3	16.7	
	TOT PCT	1.7	4.0	4.0	12.1	6.9	2.9	
4	COUNT	2	7	12	11	13	10	55
MAXIMUM TAC AIR	ROW PCT	3.6	12.7	21.8	20.0	23.6	18.2	31.8
	COL PCT	22.2	35.0	50.0	22.4	31.7	33.3	
	TOT PCT	1.2	4.0	6.9	6.4	7.5	5.8	
5	COUNT	2	2	2	11	10	8	35
MAXIMUM-MUST TAC	ROW PCT	5.7	5.7	5.7	31.4	28.6	22.9	20.2
	COL PCT	22.2	10.0	8.3	22.4	24.4	26.7	
	TOT PCT	1.2	1.2	1.2	6.4	5.8	4.6	
COLUMN TOTAL		9	20	24	49	41	30	173
		5.2	11.6	13.9	28.3	23.7	17.3	100.0

003

023	COUNT / ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE	2	ARMOR 3	ARTILLERY 4	INFANTRY 5	COMBAT S UPPORT 7	SERVICE SUPPORT 8	ROW TOTAL
1		0	2	2	2	1	2	9	
NO-MINIMUM TAC A		0.0	22.2	22.2	22.2	11.1	22.2		5.2
		0.0	10.0	8.3	4.1	2.4	6.7		
		0.0	1.2	1.2	1.2	0.6	1.2		
2		2	3	2	9	2	6	24	
MINIMUM TAC AIR		8.3	12.5	8.3	37.5	8.3	25.0		13.8
		22.2	15.0	8.3	18.4	4.9	20.0		
		1.2	1.7	1.2	5.2	1.2	3.5		
3		3	9	14	20	16	6	68	
SOME TAC AIR		4.4	13.2	20.6	29.4	23.5	8.8		39.3
		33.3	45.0	58.3	40.8	39.0	20.0		
		1.7	5.2	8.1	11.6	9.2	3.5		
4			5	5	13	19	9	52	
MAXIMUM TAC AIR		1.9	9.6	9.6	25.0	36.5	17.3		30.1
		11.1	25.0	20.8	26.5	46.3	30.0		
		0.6	2.9	2.9	7.5	11.0	5.2		
5		3	1	1	5	3	7	20	
MAXIMUM-MUST TAC		15.0	5.0	5.0	25.0	15.0	35.0		11.6
		33.3	5.0	4.2	10.2	7.3	23.3		
		1.7	0.6	0.6	2.9	1.7	4.0		
COLUMN TOTAL		9	20	24	49	41	30	173	
		5.2	11.6	13.9	28.3	23.7	17.3		100.0

003

024	COUNT / ROW PCT / COL PCT / TOT PCT	AIR DEFE INSE	2	ARMOR 3	ARTILLERY 4	INFANTRY 5	COMBAT S UPPORT 7	SERVICE SUPPORT 8	ROW TOTAL
1		0	3	5	6	4	4	22	
NO-MINIMUM TAC A		0.0	13.6	22.7	27.3	18.2	18.2		12.6
		0.0	15.0	20.8	12.2	9.8	12.9		
		0.0	1.7	2.9	3.4	2.3	2.3		
2		4	4	5	9	8	7	37	
MINIMUM TAC AIR		10.8	10.8	13.5	24.3	21.6	18.9		21.3
		44.4	20.0	20.8	18.4	19.5	22.6		
		2.3	2.3	2.9	5.2	4.6	4.0		
3		1	8	9	15	18	9	60	
SOME TAC AIR		1.7	13.3	15.0	25.0	30.0	15.0		34.5
		11.1	40.0	37.5	30.6	43.9	29.0		
		0.6	4.6	5.2	8.6	10.3	5.2		
4		2	4	4	12	9	5	36	
MAXIMUM TAC AIR		5.6	11.1	11.1	33.3	25.0	13.9		20.7
		22.2	20.0	16.7	24.5	22.0	16.1		
		1.1	2.3	2.3	6.9	5.2	2.9		
5		2	1	1	7	2	6	19	
MAXIMUM-MUST TAC		10.5	5.3	5.3	36.8	10.5	31.6		10.9
		22.2	5.0	4.2	14.3	4.9	19.4		
		1.1	0.6	0.6	4.0	1.1	3.4		
COLUMN TOTAL		9	20	24	49	41	31	174	
		5.2	11.5	13.8	28.2	23.6	17.8		100.0

Q03

Q25	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT SUPPORT	SERVICE SUPPORT	ROW TOTAL
	2	3	4	5	7	8	
1 NO-MINIMUM TAC A	0	1	1	5	4	0	11
	0.0	9.1	9.1	45.5	36.4	0.0	6.4
	0.0	5.0	4.3	10.2	9.8	0.0	
	0.0	0.6	0.6	2.9	2.3	0.0	
2 MINIMUM TAC AIR	3	4	7	10	7	9	40
	7.5	10.0	17.5	25.0	17.5	22.5	23.4
	33.3	20.0	30.4	20.4	17.1	31.0	
	1.8	2.3	4.1	5.8	4.1	5.3	
3 SOME TAC AIR	4	8	9	19	20	8	68
	5.9	11.8	13.2	27.9	29.4	11.8	39.8
	44.4	40.0	39.1	38.8	48.8	27.6	
	2.3	4.7	5.3	11.1	11.7	4.7	
4 MAXIMUM TAC AIR	0	6	4	10	6	6	32
	0.0	18.8	12.5	31.3	18.8	18.8	18.7
	0.0	30.0	17.4	20.4	14.6	20.7	
	0.0	3.5	2.3	5.8	3.5	3.5	
5 MAXIMUM-MUST TAC	2	1	2	5	4	6	20
	10.0	5.0	10.0	25.0	20.0	30.0	11.7
	22.2	5.0	8.7	10.2	9.8	20.7	
	1.2	0.6	1.2	2.9	2.3	3.5	
COLUMN TOTAL	9	20	23	49	41	29	171
	5.3	11.7	13.5	28.7	24.0	17.0	100.0

Q03

Q26	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT SUPPORT	SERVICE SUPPORT	ROW TOTAL
	2	3	4	5	7	8	
1 NO-MINIMUM TAC A	0	3	5	9	1	2	20
	0.0	15.0	25.0	45.0	5.0	10.0	11.6
	0.0	15.0	20.8	18.4	2.4	6.9	
	0.0	1.7	2.9	5.2	0.6	1.2	
2 MINIMUM TAC AIR	2	5	3	6	11	7	34
	5.9	14.7	8.8	17.6	32.4	20.6	19.8
	22.2	25.0	12.5	12.2	26.8	24.1	
	1.2	2.9	1.7	3.5	6.4	4.1	
3 SOME TAC AIR	2	8	9	18	12	5	54
	3.7	14.8	16.7	33.3	22.2	9.3	31.4
	22.2	40.0	37.5	36.7	29.3	17.2	
	1.2	4.7	5.2	10.5	7.0	2.9	
4 MAXIMUM TAC AIR	1	2	3	8	10	6	30
	3.3	6.7	10.0	26.7	33.3	20.0	17.4
	11.1	10.0	12.5	16.3	24.4	20.7	
	0.6	1.2	1.7	4.7	5.8	3.5	
5 MAXIMUM-MUST TAC	4	2	4	8	7	9	34
	11.8	5.9	11.8	23.5	20.6	26.5	19.8
	44.4	10.0	16.7	16.3	17.1	31.0	
	2.3	1.2	2.3	4.7	4.1	5.2	
COLUMN TOTAL	9	20	24	49	41	29	172
	5.2	11.6	14.0	28.5	23.8	16.9	100.0

Q03

Q27	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT SUPPORT	SERVICE SUPPORT	ROW TOTAL
1 NO-MINIMUM TAC A	0	1	0	3	0	1	5
	0.0	33.3	0.0	3.0	0.0	33.3	1.8
	0.0	5.0	0.0	2.0	0.0	3.6	
	0.0	0.6	0.0	0.6	0.0	0.6	
2 MINIMUM TAC AIR	0	0	1	6	3	3	13
	0.0	0.0	7.7	46.2	23.1	23.1	7.6
	0.0	0.0	4.2	12.2	7.3	10.7	
	0.0	0.0	0.6	3.5	1.8	1.8	
3 SOME TAC AIR	0	5	4	5	5	1	20
	0.0	25.0	20.0	25.0	25.0	5.0	11.7
	0.0	25.0	16.7	10.2	12.2	3.6	
	0.0	2.9	2.3	2.9	2.9	0.6	
4 MAXIMUM TAC AIR	5	12	12	22	17	8	76
	6.6	15.8	15.6	28.9	22.4	10.5	44.4
	55.6	60.0	50.0	44.9	41.5	28.6	
	2.9	7.0	7.0	12.9	9.9	4.7	
5 MAXIMUM-MUST TAC	4	2	7	15	16	15	59
	6.8	3.4	11.9	25.4	27.1	25.4	34.5
	44.4	10.0	29.2	30.6	39.0	53.6	
	2.3	1.2	4.1	8.8	9.4	8.8	
COLUMN TOTAL	9	20	24	49	41	28	171
	5.3	11.7	14.0	28.7	24.0	16.4	100.0

Q03

Q28	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT SUPPORT	SERVICE SUPPORT	ROW TOTAL
1 NO-MINIMUM TAC A	0	1	0	0	0	0	1
	0.0	100.0	0.0	0.0	0.0	0.0	0.6
	0.0	5.0	0.0	0.0	0.0	0.0	
	0.0	0.6	0.0	0.0	0.0	0.0	
2 MINIMUM TAC AIR	0	0	0	3	1	2	6
	0.0	0.0	0.0	50.0	16.7	33.3	3.5
	0.0	0.0	0.0	6.1	2.4	6.9	
	0.0	0.0	0.0	1.7	0.6	1.2	
3 SOME TAC AIR	3	5	3	5	9	4	30
	10.0	16.7	10.0	20.0	30.0	13.3	17.4
	33.3	25.0	12.5	12.2	22.0	13.8	
	1.7	2.9	1.7	3.5	5.2	2.3	
4 MAXIMUM TAC AIR	3	8	10	23	23	10	77
	3.9	10.4	13.0	29.9	29.9	13.0	44.8
	33.3	40.0	41.7	46.9	56.1	34.5	
	1.7	4.7	5.8	13.4	13.4	5.8	
5 MAXIMUM-MUST TAC	3	6	11	17	8	13	58
	5.2	10.3	19.0	29.3	13.8	22.4	33.7
	33.3	30.0	45.8	34.7	19.5	44.8	
	1.7	3.5	6.4	9.9	4.7	7.6	
COLUMN TOTAL	9	20	24	49	41	29	172
	5.2	11.6	14.0	28.5	23.8	16.9	100.0

Q03

Q29	AIR DEFE INSE (2)	ARMOR (3)	ARTILLERY (4)	INFANTRY (5)	COMBAT SUPPORT (7)	SERVICE SUPPORT (8)	ROW TOTAL
1 NO-MINIMUM TAC A	0	1	0	0	1	0	2
	0.	50.0	0.	0.	50.0	0.	1.2
	0	5.0	0.	0.	2.4	0.	
	0.	0.6	0.	0.	0.6	0.	
2 MINIMUM TAC AIR	3	2	1	2	4	2	14
	21.4	14.3	7.1	14.3	28.6	14.3	8.1
	33.3	10.0	4.2	4.1	9.8	6.9	
	1.7	1.2	0.6	1.2	2.3	1.2	
3 SOME TAC AIR	1	3	4	5	4	6	23
	4.3	13.0	17.4	21.7	17.4	26.1	13.4
	11.1	15.0	16.7	10.2	9.8	20.7	
	0.6	1.7	2.3	2.9	2.3	3.5	
4 MAXIMUM TAC AIR	2	9	6	19	16	11	63
	3.2	14.3	9.5	30.2	25.4	17.5	36.6
	22.2	45.0	25.0	38.8	39.0	37.9	
	1.2	5.2	3.5	11.0	9.3	6.4	
5 MAXIMUM-MUST TAC	3	5	13	23	16	10	70
	4.3	7.1	18.6	32.9	22.9	14.3	40.7
	33.3	25.0	54.2	47.9	39.0	34.5	
	1.7	2.9	7.6	13.4	9.3	5.8	
COLUMN TOTAL	9	20	24	49	41	29	172
	5.2	11.6	14.0	28.5	23.8	16.9	100.0

Q03

Q30	AIR DEFE INSE (2)	ARMOR (3)	ARTILLERY (4)	INFANTRY (5)	COMBAT SUPPORT (7)	SERVICE SUPPORT (8)	ROW TOTAL
1 NO-MINIMUM TAC A	0	2	4	6	3	3	18
	0.	11.1	22.2	33.3	16.7	16.7	10.3
	0.	10.0	16.7	12.2	7.3	9.7	
	0.	1.1	2.3	3.4	1.7	1.7	
2 MINIMUM TAC AIR	2	9	5	14	13	8	51
	3.9	17.6	9.8	27.5	25.5	15.7	29.3
	22.2	45.0	20.8	28.6	31.7	25.8	
	1.1	5.2	2.9	8.0	7.5	4.6	
3 SOME TAC AIR	2	6	11	18	14	9	60
	3.3	10.0	18.3	30.0	23.3	15.0	34.5
	22.2	30.0	45.8	36.7	34.1	29.0	
	1.1	3.4	6.3	10.3	8.0	5.2	
4 MAXIMUM TAC AIR	3	3	2	7	7	5	27
	11.1	11.1	7.4	25.9	25.9	18.5	15.5
	33.3	15.0	8.3	14.3	17.1	16.1	
	1.7	1.7	1.1	4.0	4.0	2.9	
5 MAXIMUM-MUST TAC	2	0	2	4	4	6	18
	11.1	0.	11.1	22.2	22.2	33.3	10.3
	22.2	0.	8.3	8.2	9.8	19.4	
	1.1	0.	1.1	2.3	2.3	3.4	
COLUMN TOTAL	9	20	24	46	41	31	174
	5.2	11.5	13.8	28.2	23.6	17.8	100.0

Q03

Q31	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT SUPPORT	SERVICE SUPPORT	ROW TOTAL
	2	3	4	5	7	8	
1 NO-MINIMUM TAC A	0	1	0	2	0	0	3
	0.0	33.3	0.0	66.7	0.0	0.0	1.7
	0.0	5.0	0.0	4.1	0.0	0.0	
	0.0	0.6	0.0	1.2	0.0	0.0	
2 MINIMUM TAC AIR	1	3	2	8	5	3	22
	4.5	13.6	9.1	36.4	22.7	13.6	12.8
	11.1	15.0	8.3	16.3	12.2	10.3	
	0.6	1.7	1.2	4.7	2.9	1.7	
3 SOME TAC AIR	4	8	9	16	16	9	62
	6.5	12.9	14.5	25.8	25.8	14.5	36.0
	44.4	40.0	37.5	32.7	39.0	31.0	
	2.3	4.7	5.2	9.3	9.3	5.2	
4 MAXIMUM TAC AIR	2	7	11	12	11	8	51
	3.9	13.7	21.6	23.5	21.6	15.7	29.7
	22.2	35.0	45.8	24.5	26.8	27.6	
	1.2	4.1	6.4	7.0	6.4	4.7	
5 MAXIMUM-MUST TAC	2	1	2	11	9	9	34
	5.9	2.9	5.9	32.4	26.5	26.5	19.8
	22.2	5.0	8.3	22.4	22.0	31.0	
	1.2	0.6	1.2	6.4	5.2	5.2	
COLUMN TOTAL	9	20	24	49	41	29	172
	5.2	11.6	14.0	28.5	23.8	16.9	100.0

Q03

Q32	AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT SUPPORT	SERVICE SUPPORT	ROW TOTAL
	2	3	4	5	7	8	
1 NO-MINIMUM TAC A	0	2	3	7	2	0	14
	0.0	14.3	21.4	50.0	14.3	0.0	8.2
	0.0	10.5	12.6	14.3	4.9	0.0	
	0.0	1.2	1.8	4.1	1.2	0.0	
2 MINIMUM TAC AIR	1	5	8	10	8	4	33
	3.0	15.2	15.2	30.3	24.2	12.1	19.3
	11.1	26.3	20.8	20.4	19.5	13.8	
	0.6	2.9	2.9	5.8	4.7	2.3	
3 SOME TAC AIR	3	8	8	16	12	8	55
	5.5	14.5	14.5	29.1	21.8	14.5	32.2
	33.3	42.1	33.3	32.7	29.3	27.6	
	1.8	4.7	4.7	9.4	7.0	4.7	
4 MAXIMUM TAC AIR	2	3	7	11	16	10	49
	4.1	6.1	14.3	22.4	32.7	20.4	28.7
	22.2	15.8	29.2	22.4	39.0	34.5	
	1.2	1.8	4.1	6.4	9.4	5.8	
5 MAXIMUM-MUST TAC	3	1	1	5	3	7	20
	15.0	5.0	5.0	25.0	15.0	35.0	11.7
	33.3	5.3	4.2	10.2	7.3	24.1	
	1.8	0.6	0.6	2.9	1.8	4.1	
COLUMN TOTAL	9	19	24	49	41	29	171
	5.3	11.1	14.0	28.7	24.0	17.0	100.0

Q03

Q33	COUNT / ROW PCT / COL PCT / TOT PCT	2 AIR DEFE INSE	3 ARMOR	4 ARTILLERY	5 INFANTRY	7 COMBAT SUPPORT	8 SERVICE SUPPORT	ROW TOTAL
1 NO-MINIMUM TAC A		0	2	6	7	2	1	18
		0.0	11.1	33.3	38.9	11.1	5.6	10.5
		0.0	10.5	25.0	14.3	4.9	3.3	
		0.0	1.2	3.5	4.1	1.2	0.6	
2 MINIMUM TAC AIR		2	4	8	14	12	9	46
		4.3	8.7	10.9	30.4	26.1	19.6	26.7
		22.2	21.1	20.8	28.6	29.3	30.0	
		1.2	2.3	2.9	8.1	7.0	5.2	
3 SOME TAC AIR		4	9	7	15	13	4	52
		7.7	17.3	13.5	28.8	25.0	7.7	30.2
		44.4	47.4	29.2	30.6	31.7	13.3	
		2.3	5.2	4.1	8.7	7.6	2.3	
4 MAXIMUM TAC AIR		0	3	5	8	11	6	33
		0.0	9.1	15.2	24.2	33.3	18.2	19.2
		0.0	15.8	20.8	16.3	26.8	20.0	
		0.0	1.7	2.9	4.7	6.4	3.5	
5 MAXIMUM-MUST TAC		3	1	1	5	3	10	23
		13.0	4.3	4.3	21.7	13.0	43.5	13.4
		33.3	5.3	4.2	10.2	7.3	33.3	
		1.7	0.6	0.6	2.9	1.7	5.8	
COLUMN TOTAL		9	19	24	49	41	30	172
		5.2	11.0	14.0	28.5	23.8	17.4	100.0

Q03

Q34	COUNT / ROW PCT / COL PCT / TOT PCT	2 AIR DEFE INSE	3 ARMOR	4 ARTILLERY	5 INFANTRY	7 COMBAT SUPPORT	8 SERVICE SUPPORT	ROW TOTAL
1 NO-MINIMUM TAC A		0	2	1	7	5	2	17
		0.0	11.8	5.9	41.2	29.4	11.8	9.9
		0.0	10.0	4.3	14.3	12.2	6.9	
		0.0	1.2	0.6	4.1	2.9	1.2	
2 MINIMUM TAC AIR		3	6	8	12	9	7	45
		0.7	13.3	17.8	26.7	20.0	15.6	26.3
		33.3	30.0	34.8	24.5	22.0	24.1	
		1.8	3.5	4.7	7.0	5.3	4.1	
3 SOME TAC AIR		3	7	9	15	15	11	60
		5.0	11.7	15.0	25.0	25.0	18.3	35.1
		33.3	35.0	39.1	30.6	36.6	37.9	
		1.8	4.1	5.3	8.8	8.8	6.4	
4 MAXIMUM TAC AIR		1	4	3	11	8	3	30
		3.3	13.3	10.0	36.7	26.7	10.0	17.5
		11.1	20.0	13.0	22.4	19.5	10.3	
		0.6	2.3	1.8	6.4	4.7	1.8	
5 MAXIMUM-MUST TAC		2	1	2	4	4	6	19
		10.5	5.3	10.5	21.1	21.1	31.6	11.1
		22.2	5.0	8.7	8.2	9.8	20.7	
		1.2	0.6	1.2	2.3	2.3	3.5	
COLUMN TOTAL		9	20	23	49	41	29	171
		5.3	11.7	13.5	28.7	24.0	17.0	100.0

Q03

Q35	COUNT / ROW PCT / COL PCT / TOT PCT	2 AIR DEFE INSE	3 ARMOR	4 ARTILLERY	5 INFANTRY	7 COMBAT SUPPORT	8 SERVICE SUPPORT	ROW TOTAL
1		0	0	2	1	6	6	15
G-1		0.	0.	13.3	6.7	40.0	40.0	8.7
		0.	0.	8.3	2.1	14.6	20.0	
		0.	0.	1.2	0.6	3.6	3.5	
2		0	2	1	1	11	1	16
G-2		0.	12.5	6.3	6.3	68.8	6.3	9.3
		0.	10.0	4.2	2.1	2[illegible].8	3.3	
		0.	1.2	0.6	0.6	6.4	0.6	
3		8	18	20	44	18	2	110
G-3		7.3	16.4	18.2	40.0	16.4	1.8	64.0
		88.9	90.0	83.3	91.7	43.9	6.7	
		4.7	10.5	11.6	25.6	10.5	1.2	
4		0	0	0	0	4	17	21
G-4		0.	0.	0.	0.	19.0	81.0	12.2
		0.	0.	0.	0.	9.8	56.7	
		0.	0.	0.	0.	2.3	9.9	
5		0	0	0	0	0	1	1
G-5		0.	0.	0.	0.	0.	100.0	0.6
		0.	0.	0.	0.	0.	3.3	
		0.	0.	0.	0.	0.	0.6	
6		1	0	1	2	2	3	9
OTHER		11.1	0.	11.1	22.2	22.2	33.3	5.2
		11.1	0.	4.2	4.2	4.9	10.0	

Q03

Q36	COUNT / ROW PCT / COL PCT / TOT PCT	2 AIR DEFE INSE	3 ARMOR	4 ARTILLERY	5 INFANTRY	7 COMBAT SUPPORT	8 SERVICE SUPPORT	ROW TOTAL
1		7	16	18	40	29	25	135
AIR SUPERIORITY		5.2	11.9	13.3	29.6	21.5	18.5	77.6
		77.8	80.0	75.0	81.6	70.7	80.6	
		4.0	9.2	10.3	23.0	16.7	14.4	
2		1	3	6	6	8	3	26
CLOSE AIR SUPPOR		3.8	11.5	19.2	23.1	30.8	11.5	14.9
		11.1	15.0	20.8	12.2	19.5	9.7	
		0.6	1.7	2.9	3.4	4.6	1.7	
3		1	1	1	2	1	2	8
INTERDICTION		12.5	12.5	12.5	25.0	12.5	25.0	4.6
		11.1	5.0	4.2	4.1	2.4	6.5	
		0.6	0.6	0.6	1.1	0.6	1.1	
4		0	0	0	0	0	1	1
ELECTRONIC WARFA		0.	0.	0.	0.	0.	100.0	0.6
		0.	0.	0.	0.	0.	3.2	
		0.	0.	0.	0.	0.	0.6	
5		0	0	0	1	3	0	4
RECCE		0.	0.	0.	25.0	75.0	0.	2.3
		0.	0.	0.	2.0	7.3	0.	
		0.	0.	0.	0.6	1.7	0.	
COLUMN TOTAL		9	20	26	49	41	31	174
		5.2	11.5	15.8	28.2	23.6	17.8	100.0

003

COUNT / ROW PCT / COL PCT / TOT PCT	2 AIR DEFENSE	3 ARMOR	4 ARTILLERY	5 INFANTRY	7 COMBAT SUPPORT	8 SERVICE SUPPORT	ROW TOTAL
037							
1 AIR SUPERIORITY	0 0. 0. 0.	2 9.5 10.0 1.2	4 19.0 16.7 2.3	4 19.0 8.2 2.3	7 33.3 17.1 4.0	4 19.0 13.3 2.3	21 12.1
2 CLOSE AIR SUPPOR	5 5.8 55.6 2.9	6 7.0 30.0 3.5	12 14.0 50.0 6.9	29 33.7 59.2 16.8	14 16.3 34.1 8.1	20 23.3 66.7 11.6	86 49.7
3 INTERDICTION	4 7.8 44.4 2.3	10 19.6 50.0 5.8	6 11.8 25.0 3.5	13 25.5 26.5 7.5	14 27.5 34.1 8.1	4 7.8 13.3 2.3	51 29.5
4 ELECTRONIC WARFA	0 0. 0. 0.	0 0. 0. 0.	1 16.7 4.2 0.6	0 0. 0. 0.	4 66.7 9.8 2.3	1 16.7 3.3 0.6	6 3.5
5 RECCE	0 0. 0. 0.	2 22.2 10.0 1.2	1 11.1 4.2 0.6	3 33.3 6.1 1.7	2 22.2 4.9 1.2	1 11.1 3.3 0.6	9 5.2
COLUMN TOTAL	9 5.2	20 11.6	24 13.9	49 28.3	41 23.7	30 17.3	173 100.0

003

COUNT / ROW PCT / COL PCT / TOT PCT	2 AIR DEFENSE	3 ARMOR	4 ARTILLERY	5 INFANTRY	7 COMBAT SUPPORT	8 SERVICE SUPPORT	ROW TOTAL
030							
1 AIR SUPERIORITY	5 4.5 55.6 2.9	15 13.5 75.0 8.6	16 14.4 66.7 9.2	31 27.9 63.3 17.8	25 22.5 61.0 14.4	19 17.1 61.3 10.9	111 63.8
2 CLOSE AIR SUPPOR	0 0. 0. 0.	2 5.6 10.0 1.1	7 19.4 29.2 4.0	12 33.3 24.5 6.9	6 16.7 14.6 3.4	9 25.0 29.0 5.2	36 20.7
3 INTERDICTION	4 18.2 44.4 2.3	3 13.6 15.0 1.7	0 0. 0. 0.	4 18.2 8.2 2.3	8 36.4 19.5 4.6	3 13.6 9.7 1.7	22 12.6
4 ELECTRONIC WARFA	0 0. 0. 0.	0 0. 0. 0.	0 0. 0. 0.	0 0. 0. 0.	2 100.0 4.9 1.1	0 0. 0. 0.	2 1.1
5 RECCE	0 0. 0. 0.	0 0. 0. 0.	1 33.3 4.2 0.6	2 66.7 4.1 1.1	0 0. 0. 0.	0 0. 0. 0.	3 1.7
COLUMN TOTAL	9 5.2	20 11.5	24 13.8	49 28.2	41 23.6	31 17.8	174 100.0

Q03

Q39		2	3	4	5	7	8	ROW TOTAL
1 AIR SUPERIORITY	COUNT	0	2	1	7	6	2	18
	ROW PCT	0.	11.1	5.6	38.9	33.3	11.1	10.4
	COL PCT	0.	10.0	4.2	14.3	14.6	6.7	
	TOT PCT	0.	1.2	0.6	4.0	3.5	1.2	
2 CLOSE AIR SUPPOR	COUNT	3	9	8	17	14	15	64
	ROW PCT	4.7	14.1	9.4	26.6	21.9	23.4	37.0
	COL PCT	33.3	45.0	25.0	34.7	34.1	50.0	
	TOT PCT	1.7	5.2	3.5	9.8	8.1	8.7	
3 INTERDICTION	COUNT	4	6	17	16	10	9	62
	ROW PCT	6.5	9.7	27.4	25.8	16.1	14.5	35.8
	COL PCT	44.4	30.0	70.8	32.7	24.4	30.0	
	TOT PCT	2.3	3.5	9.8	9.2	5.8	5.2	
4 ELECTRONIC WARFA	COUNT	1	0	0	3	3	2	9
	ROW PCT	11.1	0.	0.	33.3	33.3	22.2	5.2
	COL PCT	11.1	0.	0.	6.1	7.3	6.7	
	TOT PCT	0.6	0.	0.	1.7	1.7	1.2	
5 RECCE	COUNT	1	3	0	6	8	2	20
	ROW PCT	5.0	15.0	0.	30.0	40.0	10.0	11.6
	COL PCT	11.1	15.0	0.	12.2	19.5	6.7	
	TOT PCT	0.6	1.7	0.	3.5	4.6	1.2	
COLUMN TOTAL		9	20	24	49	41	30	173
		5.2	11.6	13.9	28.3	23.7	17.3	100.0

Q03

Q40		2	3	4	5	7	8	ROW TOTAL
1 AIR SUPERIORITY	COUNT	6	14	17	29	25	23	114
	ROW PCT	5.3	12.3	14.9	25.4	21.9	20.2	65.5
	COL PCT	66.7	70.0	70.8	59.2	61.0	74.2	
	TOT PCT	3.4	8.0	9.8	16.7	14.4	13.2	
2 CLOSE AIR SUPPOR	COUNT	3	3	6	9	8	5	33
	ROW PCT	9.1	9.1	15.2	27.3	24.2	15.2	19.0
	COL PCT	33.3	15.0	20.8	18.4	19.5	16.1	
	TOT PCT	1.7	1.7	2.9	5.2	4.6	2.9	
3 INTERDICTION	COUNT	0	2	2	9	4	3	20
	ROW PCT	0.	10.0	10.0	45.0	20.0	15.0	11.5
	COL PCT	0.	10.0	8.3	18.4	9.8	9.7	
	TOT PCT	0.	1.1	1.1	5.2	2.3	1.7	
4 ELECTRONIC WARFA	COUNT	0	1	0	0	1	0	2
	ROW PCT	0.	50.0	0.	0.	50.0	0.	1.1
	COL PCT	0.	5.0	0.	0.	2.4	0.	
	TOT PCT	0.	0.6	0.	0.	0.6	0.	
5 RECCE	COUNT	0	0	0	2	3	0	5
	ROW PCT	0.	0.	0.	40.0	60.0	0.	2.9
	COL PCT	0.	0.	0.	4.1	7.3	0.	
	TOT PCT	0.	0.	0.	1.1	1.7	0.	
COLUMN TOTAL		9	20	24	49	41	31	174
		5.2	11.5	13.8	28.2	23.6	17.8	100.0

041	COUNT / ROW PCT / COL PCT / TOT PCT	003 AIR DEFE INSE	ARMOR	ARTILLERY	INFANTRY	COMBAT S UPPORT	SERVICE SUPPORT	ROW TOTAL
		2	3	4	5	7	8	
1		1	3	2	9	3	3	21
AIR SUPERIORITY		4.8	14.3	9.5	42.9	14.3	14.3	12.4
		11.1	15.0	8.3	18.8	7.7	10.3	
		0.6	1.8	1.2	5.3	1.8	1.8	
2		4	5	13	18	13	16	69
CLOSE AIR SUPPOR		5.8	7.2	18.8	26.1	18.8	23.2	40.8
		44.4	25.0	54.2	37.5	33.3	55.2	
		2.4	3.0	7.7	10.7	7.7	9.5	
3		4	10	8	15	18	8	63
INTERDICTION		6.3	15.9	12.7	23.8	28.6	12.7	37.3
		44.4	50.0	33.3	31.3	46.2	27.6	
		2.4	5.9	4.7	8.9	10.7	4.7	
4		0	0	0	3	3	0	6
ELECTRONIC WARFA		0.	0.	0.	50.0	50.0	0.	3.6
		0.	0.	0.	6.3	7.7	0.	
		0.	0.	0.	1.8	1.8	0.	
5		0	2	1	3	2	2	10
RECCE		0.	20.0	10.0	30.0	20.0	20.0	5.9
		0.	10.0	4.2	6.3	5.1	6.9	
		0.	1.2	0.6	1.8	1.2	1.2	
COLUMN TOTAL		9	20	24	48	39	29	169
		5.3	11.8	14.2	28.4	23.1	17.2	100.0

ANNEX B

The most definitive treatment of HTLD expectations of TAC air support is found in Annex C - Fire Support of the Operational Concept for the High Technology Light Division. Included here as Annex B is the 10 March 1982 iteration of the Fire Support Annex.

[ANNEX C]

FIRE SUPPORT

1. PURPOSE.

a. To provide an operational concept for fire support of the High Technology Light Division (HTLD).

b. The threat consists of a variety of weapons and support systems ranging from soft targets such as trucks, towed howitzers and command and control systems, to hard targets such as tanks and self-propelled howitzers. The threat varies in configuration from stylized echelonment in NATO, to forces of varying composition in other contingency areas. The artillery organization deployed with the division is capable of systematically attriting threat forces. The division attains a firepower application, not massed attrition.

2. LIMITATIONS. Strategic deployment may:

a. Constrain the type and amount of ammunition available to support artillery operations.

b. Limit the initial availability of target acquisition assets.

c. Limit the availability of combat support and combat service support assets, thereby constraining fire support capability.

3. OPERATIONAL CONCEPT.

a. General. Successful accomplishment of the fire support function contributes to a reduction of enemy firepower to a point that favors friendly forces. Additionally, the degradation of enemy firepower enhances the survivability of friendly forces and employ direct fire weapon systems more effectively. There are three tasks essential to the accomplishment of the fire support function. They are:

- o Close Combat Support.
- o Counterfire.
- o Interdiction.

Additionally, there are four sub-tasks that are performed to facilitates accomplishment of each task. These sub-tasks are:

- o Target acquisition.
- o Target processing.

- o Target attack.
- o Target Attack assessment.

b. Close Combat Support. Close Combat Support is the task of neutralizing or destroying threat forces within line of sight which are capable of firing their primary weapons systems on friendly forces. Targets include tanks, combat vehicles, anti-tank guided missiles and, mounted and dismounted infantry. Inherent in this task is the necessity to acquire and develop targets, maneuver to attack those targets, or bypass enemy forces in order to attack deeper targets. From time to time it is necessary to seize and hold terrain in order to attack enemy targets. Close Combat Support also includes the employment of supporting weapons such as mortars, field artillery, tactical aircraft and electronic jammers as they contribute to the direct fire battle. Field artillery close combat suppport is normally accomplished by the direct support artillery battalion supporting each committed maneuver brigade. The sub-tasks of target acquisition, target processing, target attack and target attack assessment permeate close combat, counterfire and interdicition and are defined below:

(1) Target Acquisition. Target Acquisition is that part of the fire support system which involves cueing of reconnaissance and surveillance systems, accurate and timely detection, identification, and location of enemy activity. Implicit in this sub-task are the functions performed by personnel such as the division fire support element and the fire support sections and fire support teams located at maneuver brigade/battalion/company level that provide targeting information.

(2) Target Processing. Target processing is the function of selecting targets for attack. The product of target processing is the assignment of specific appropriate weapons and munitions to attack a target either by fire or electronic means. Target processing involves continous fire planning and continuous targeting for nuclear, chemical, conventional, and electronic attack. The elements of target processing are.

- o Receive nominated targets from target acquisition systems.
- o Analyze targets for appropriateness of attack.
- o Verify the commander's priorities for target attack.
- o Formulate the order to attack, track, watch or ignore.

(3) Target Attack. Target attack is the functional activity through which attack orders are executed by fire support means. This activity includes technical fire direction when indirect fire means are employed. Technical fire direction consists of the methods and techniques used in the fire direction center to convert target information into firing data. Inherent in this activity are the logistical functions required to sustain the

attack systems. The sub-tasks of target attack consists of the following elements:

(a) Receive the attack order.

(b) Process the order, perform technical fire direction.

(c) Issue commands.

(d) Execute the attack order.

(4) Target Attack Assessment. To close the loop of the fire support system, the results of each target attack are determined. Based upon this assessment, it may then be determined that the attack was ineffective and the target should be re-engaged. On the other hand, an initial attack on a target could produce greater effects than envisioned and thus generate additional tactical opportunities. The sub-tasks of assessment are:

(a) Cue applicable assets.

(b) Observe the target at or immediately after attack.

(c) Perform battle damage assessment (BDA).

(d) Determine if desired damage criteria have been met.

(e) Re-insert into the target processing step to decide whether to attack or re-attack, track, watch, delete or ignore.

(f) Inform decision maker of results.

c. Counterfire. Counterfire is the attack of enemy fire systems by fire and electronic means. The performance of the counterfire task includes all activities necessary to effect the attack of enemy mortar, cannon, rocket and missile systems including their associated command and control, communications and support systems. The counterfire process consists of the below listed sub-tasks which were previously defined.

- o Target acquisition.
- o Target processing.
- o Target attack.
- o Target attack assessment.

Counterfire operations are conducted by the division. During contingency operations, counterfire operations are conducted by artillery and electronic weapon systems deploying into the objective area.

d. Interdiction. Interdiction is the attack of enemy second echelon forces. This includes the first and second echelon divisions and their supporting elements not yet involved in the central battle.

(1) To prevent second echelon elements from becoming a first-echelon problem, they are delayed or disrupted while assaulting echelons are engaged and destroyed. A Warsaw Pact trained second echelon unit consists of a tightly controlled, well-integrated tactical formation. The tactical success or failure of this formation is dependent on the integral efficiency of its four basic elements: combat systems, combat support, combat service support, and C^3. In order to evaulate tactical payoffs available from engaging these elements, each is analyzed based on the following criteria: the contribution of the element to the overall momentum of the second-echelon unit, the vulnerability of that element to friendly weapon systems, and the location on the battlefield where that element makes its greatest contribution to the cohesion or integrity of the second echelon as it moves to join the battle.

(a) The contribution of combat systems to momentum is not fully realized until those systems are committed and their weapons are brought to bear on the defender. Thus, combat systems are not necessarily the dominant element of the formation until they are in contact with the defender.

(b) Certain second-echelon support systems (artillery, engineers, air defense artillery, electronic warfare) help to sustain second-echelon momentum. However, their greatest contribution to momentum occurs when they deploy in support of combat systems in contact or being committed to battle. Support systems present targets of varying degrees of vulnerability all of which are softer than the tank. Consequently, directing long-range weapon systems against such targets might achieve a greater reduction of the enemy potential than if these systems were targeted against substantially fewer hard targets that are more difficult to kill.

(c) Service support systems are predominantly soft-skinned and roadbound and, as such, are more vulnerable to attack than any other element of enemy formation. Service support elements critical to combat are found just to the rear of committed forces and constitute high leverage targets. From this point rearward, their density increases to a degree where they become the predominant element of follow-on echelons.

(d) Command and control systems are vulnerable to attack both by electronic means and by fire. Regiment-to-division and division-to-Army command nets are particularly important targets for jamming. Destruction of alternate--might be the best way to disrupt the enemy force.

(e) Terrain and traffic analysis and other intelligence sources are used to identify routes of approach, major road and rail chokepoints, bridges, river crossing sites, assembly areas, and ammunition and fuel storage and transfer points. Continuous surveillance and targeting provide opportunities for the engagement of soft targets at these points. Two immediate effects are:

1. Delay and disruption of second-echelon force efforts to use key routes, bridges, and river crossing sites.

2. Degradation of combat service support to committed units.

3. Changes to plans and orders, causing otherwise silent communications systems to be exposed to attack and exploitation.

(2) Second-echelon forces that can effect operations within 24 hours are of concern to the division. When the division is defending, such forces are normally second-echelon regiments of first-echelon enemy divisions; when the division is attacking, such forces are normally reserves of forward regiments. The purpose of attacking those second-echelon forces is to provide the time and space necessary for ground and air forces to defeat assaulting enemy regiments by fire or to provide an opportunity for ground forces to attack enemy forces by fire and maneuver. Second-echelon forces of interest to the division commander are located and tracked by both Army and Air Force intelligence systems. These forces are attacked by:

(a) Army cannon, rocket, and missile systems.

(b) Attack helicopters.

(c) Battlefield Air Interdiction (BAI) sorties, as primary missions.

(d) Close Air Support (CAS), as alternate missions.

(e) Air Force and Army electronic systems. As a general rule, target priorities in these formations include:

1. Artillery

2. Air defense

3. Command and control and communications

4. Logistics installations

5. Combat formations and assembly areas

(a) The division commander determines what he wants done to second-echelon forces that can affect his operations--disrupted or delayed for a specific period of time, rendered ineffective or diverted from their present route to another route more favorable to the division. When the division commander is unable to attack sufficient second-echelon targets with weapons under his direction, he passes a request to corps for assistance.

(b) As the battle unfolds, the corps normally retains control of operations against uncommitted enemy ground forces. However, control of operations against these enemy forces is usually passed to a subordinate division as those forces are committed against that division. In any event, the corps commander controls operations against the enemy main effort.

(c) As general principle, the weight of friendly tactical air forces is applied to attacking enemy follow-on echelons, once the main attack is identified. During offensive operations, the weight of tactical air forces is used against enemy reserves.

(d) Requirements for battlefield air interdiction (BAI) vary with the need to disrupt enemy momentum. BAI operates against enemy momentum in two ways:

1. By attacks on lines of communication (LOCs)--bridges, river crossing sites, mountain passes, and along routes of advance.

2. By attacks on maneuver, fire support, logistic, and command and control elements in march column or in assembly areas.

(e) BAI is jointly planned. As the threat of second echelon regiments of the first-echelon division becomes a concern to the division commander, he selects targets for attack. The air commander determines vulnerability of the target to air attack and the sorties required, to include support sorties. Requirements are satisfied by aircraft on ground or airborne alert or by diverting airborne aircraft.

(f) Army and Air Force planning and operations elements are integrated at the division to facilitate the planning and execution of air/ground operations in support of the division. The ground force element provides, interprets, and exchanges information and coordinates and requests air support. The Air Force element plans and executes immediate and preplanned close air support.

(g) These elements weigh requests for support against availability of assets by assessing the danger of a target when compared with other requests. It is determined at what range (where), when (time and space), how often (number of sorties, rounds of artillery), and with what systems (air, artillery or EW) targets should be attacked to provide the desired effect. Post strike reconnaissance is planned, at this time, to provide the status of targets after the attack is executed.

e. Air Delivered Weapons:

(1) Tactical air force weapons systems are used to detect enemy movement throughout the airland battlefield and to attack selected deep targets. Air forces provide the commander with a fast reaction capability to strike beyond the range of other weapons systems with conventional and/or

nuclear-chemical fires. Contingency operations are particularly dependent on air forces due to the self deployment characteristics of tactical aircraft and their range of operations.

(2) Tactical air operations are conducted to:

(a) Attack selected targets including logistics units/activities, C^3I activities, reserve formations and other targets related to the battle plan.

(b) Gain and maintain local air superiority. This may be difficult particularly in the early days of a contingency conflict against an advanced technology threat force operating from shorter lines of communication.

(c) Prevent movement of enemy forces into and within the combat zone.

(d) Assist ground forces in the attainment of objectives.

(3) Air Tasks.

(a) Counterair. Tactical air operations are conducted against Threat air to control selected portions of the airspace and provide security from Threat tactical air operations. Air defense protection from this source is particularly critical in contingency operations because Army air defenses are constrained by deployment limitations. Counterair operations may demand the highest priority of all air operations. Counterair protection of CSS concentration within the lodgment is a priority mission.

(b) Battlefield Air Interdiction (BAI). Includes operations to destroy, isolate, neutralize, or delay the enemy's attack in depth and create opportunities for ground forces to take offensive actions at the FLOT. BAI targets and the timing of interdiction is keyed to planning for ground operations. Vulnerabilities, are created in the Threat attack which are capitalized on by ground and air forces in the main battle area (MBA). Air interdiction operations using beacons and other terminal guidance systems must be targeted against enemy command and control facilities, LOCs, mobility assets and massed formations. BAI and MBA sctions are not conducted independently of each other, but are closely coordinated. BAI is particularly applicable in contingency operations because of opposition from threat heavy forces echeloned in depth; however, battlefield air interdiction is also applicable to lower intensity battle against a less well equipped and trained enemy.

(c) Close Air Support (CAS) is air action against targets in the close proximity of friendly troops. Maximum use is made of CAS in conjunction with organic aviation and fire support forces to support ground maneuver forces. Additionally, due to early shortages of surface firepower in contingency operations, CAS is extremely important. Tactical air support will be used to increase the survivability and augment the destructive power of ground maneuver units by attacking selected critical targets.

(d) Resource control. Organic and CAS tactical air resources are critical to the battle and must be tightly controlled at corps level. Choices made as to air tasks to be performed in support of division operations are integrated with the overall battle plan. Planning and direction functions for air resources are conducted within the fire support system. Air Force and Naval liaison teams coordinate fires from their respective services with the division fire support cell.

f. Suppression of Enemy Air Defenses (SEAD).

(1) SEAD is defined as that activity which neutralizes, destroys or temporarily degrades enemy air defense systems in a specific area to enable air operations to be successfully conducted.

(2) Joint SEAD (J-SEAD) is that portion of SEAD which requires joint interaction to suppress enemy surface-to-air defense system having an influence on the conduct of friendly operations.

(3) The Army has primary execution responsibility for J-SEAD from the front line own troops (FLOT) to the limits of observed fire. In this area the Air Force has secondary responsibility. The Air Force has primary execution responsibility for J-SEAD from the limits of observed fire to the limits of Army unobserved indirect fire (cannon and rocket) capabilities. In this area the Army has secondary responsibility. The Air Force has responsibility for SEAD beyond the limits of Army unobserved indirect fire (cannon and rockets) capabilities. Army surface-to-surface systems may be used against long range threats. Divisional field artillery and attack helicopter weapons systems are required to conduct SEAD as planned missions or as targets of opportunity while accomplishing close combat support and counterfire tasks.

g. Scatterable mines. Remotely delivered anti-tank and anti-personnel land mines are delivered by field artillery, helicopter and USAF tactical aircraft to kill, delay and disrupt enemy forces. These mines may be employed to reinforce other natural or man-made obstacles, as flank security and for interdiction missions.